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# The OIL WEEKLY

OIL and GAS ENGINEERING

FOR OIL AND GAS PRODUCTION AND PIPE LINE DIVISIONS

THE WEEK'S NEWS INTERPRETED

FOR CONDITIONING CRUDE OIL TO PIPE LINE REQUIREMENTS

**TRETOLITE COMPANY**

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The folks in the picture, left to right:

Ray Johnson, Jarecki Mfg. Co.
Chick Wright, Tooldresser, Mid-Kansas O. & G. Co.
Ed. Frye, Union Wire Rope Corp.
Elinor Frye, learning the ropes from her Dad.
George Agard, Driller
Wilbur Lusher, Tool Pusher
Frank Linkenfelter, District Foreman

Standing in front:

Bruce Aug, Farm Boss

The photograph shows the Mid-Kansas Oil and Gas Company Duerksen No. 3, Hollow Pool, Harvey County, Kansas . . . drilled with a UNION Drilling Cable.

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The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 3301 Buffalo Drive, Houston, Texas. Subscription price $1.00 per year; 15 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 187[illegible]

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S. W. ROBINSON
Editor

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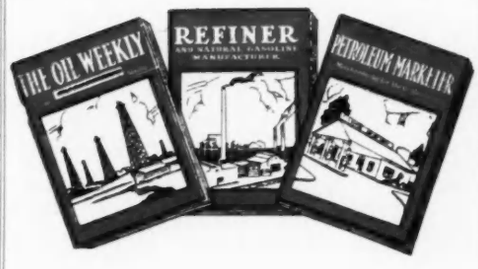


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R. L. DUDLEY, *President*
A. L. BURNS, *Gen'l Manager*
S. W. ROBINSON, *Editorial Director*
J. KENT RIDLEY, *Managing Editor*

NEW YORK: Room 323, 250 Park Avenue, Dick Swinsky, Manager.

PITTSBURGH: 902 Standard Life Building, W. W. Pigue, Manager.

CHICAGO: Room 1235, 141 W. Jackson Blvd. Tom W. Nelson, Manager.

LOS ANGELES: 416 Haas Building. W. E. Green, Manager.

TULSA: 1020-23 Hunt Building, J. F. Carter, Jr., Manager.

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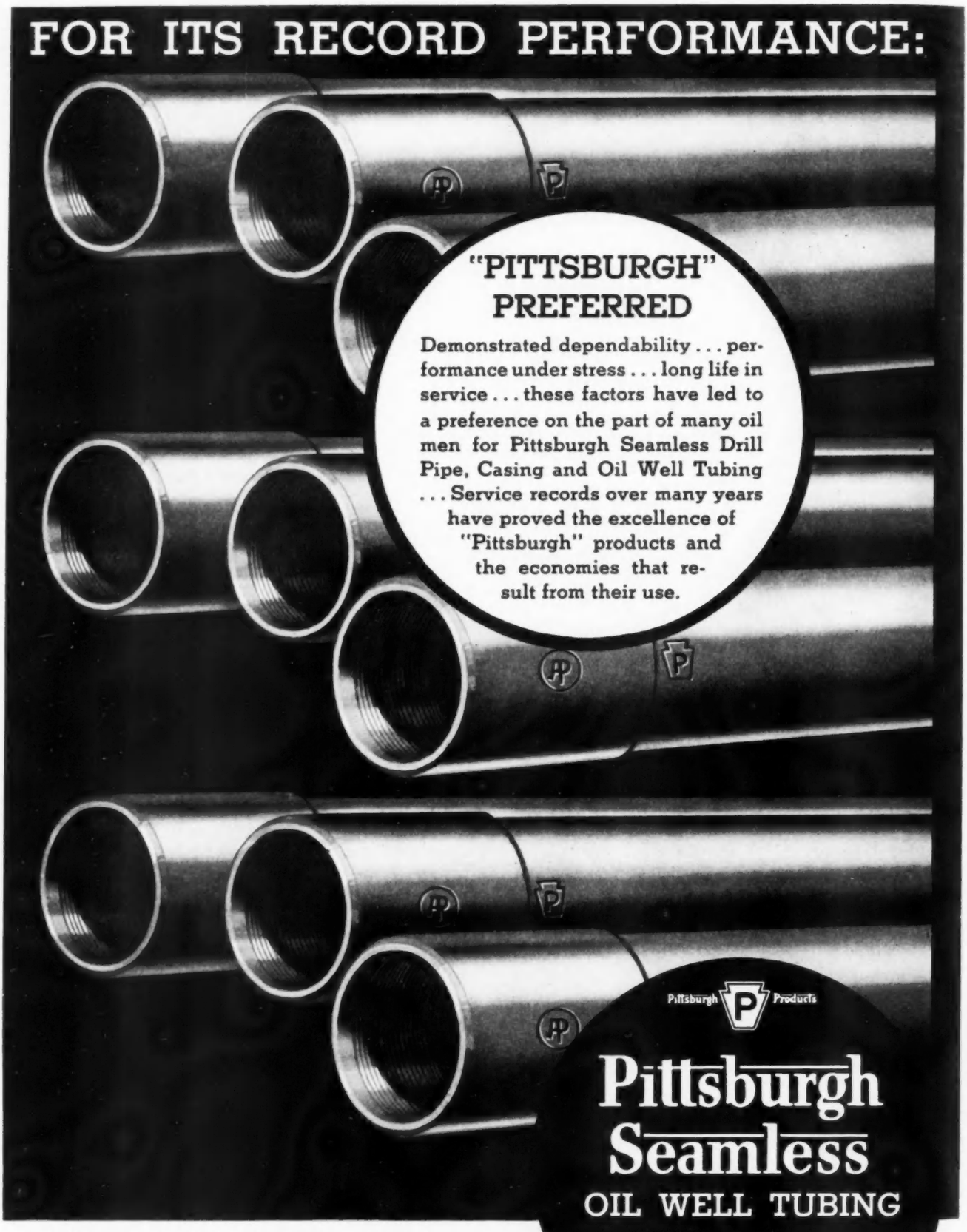

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HOUSTON TULSA LOS ANGELES

VOLUME 69, No. 11 MAY 29, 1933

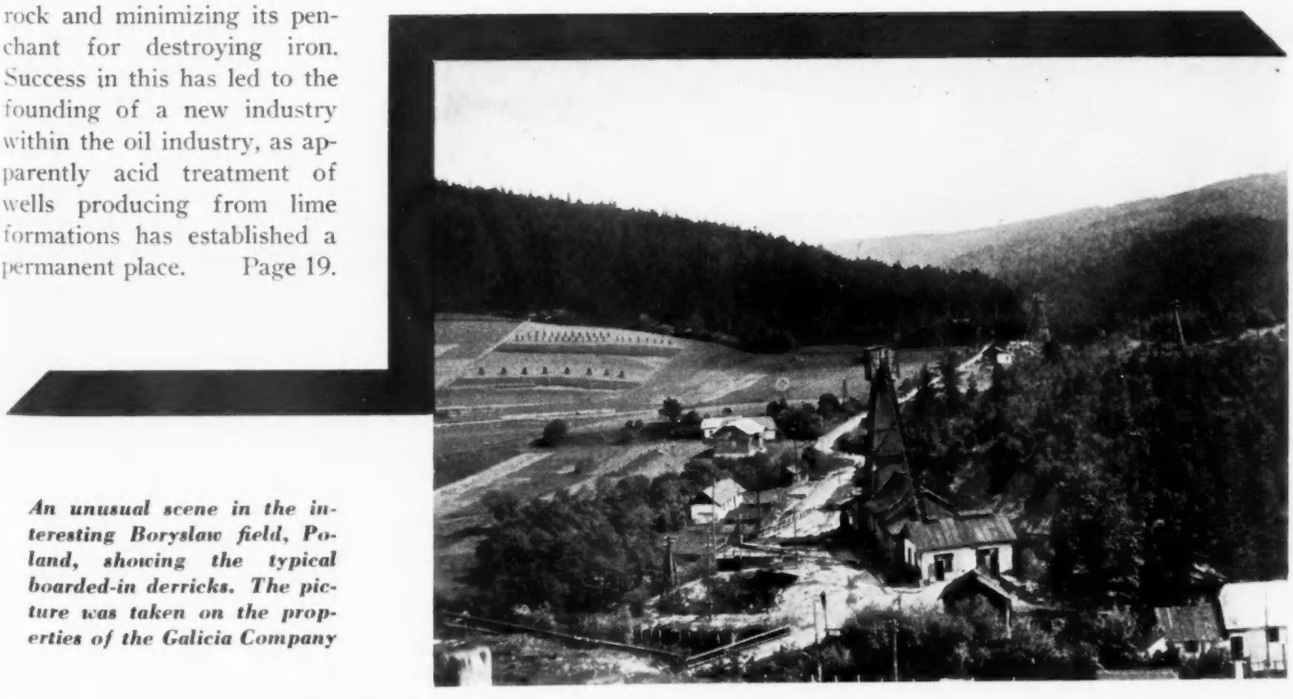
# THE OIL WEEKLY

FOR OIL AND GAS PRODUCTION AND
PIPE LINE DIVISIONS

ENGINEERING • NEWS • STATISTICS

# The Changing Panorama

AGAIN it is shown that nothing is new. Acid treatment of oil wells had genesis when there yet were only a few oil wells. The idea was not popular because the acid, while effective on the lime formation, also had a potency in the disintegration of casing and tubing. After a period of nearly 40 years the idea was revived when an acid maker conceived the idea of using his product to increase production of his raw material. It so happened that the raw material in question was brine which too often is associated with oil. It followed that if acid would open up lime formations to let salt water out more freely, the same would work with oil. These experiments included diluting the acid, preserving its quality of disintegrating lime rock and minimizing its penchant for destroying iron. Success in this has led to the founding of a new industry within the oil industry, as apparently acid treatment of wells producing from lime formations has established a permanent place. Page 19.



***An unusual scene in the interesting Boryslaw field, Poland, showing the typical boarded-in derricks. The picture was taken on the properties of the Galicia Company***

Reports to the American Petroleum Institute from refining companies controlling 91.6 per cent of the 3,856,300 barrels estimated daily potential refining capacity of the United States, indicate that 2,266,000 barrels of crude oil daily were run to stills operated by those companies, and that they had in storage at the refineries at the end of the week of May 20, 33,272,000 barrels of gasoline and 124,009,000 barrels of gas and fuel oil. Gasoline at bulk terminals, in transit and in pipe lines amounted to 20,380,000 barrels for the same period. Cracked gasoline production by companies owning 95.4 per cent of the potential charging capacity of all cracking units, averaged 482,000 barrels during the week.

## Demand for Asphalt

Producers and manufacturers of petroleum and lake asphalt experienced a declining demand for their products during 1932. The decline of 16.4 per cent in

**The Oil Man's Calendar**

JUNE

6 *Yates Hearing, Austin, Texas.*

15 *Texas Pipe Line Rate Hearing, Austin, Texas.*

26-30 *American Society for Testing Materials, Chicago.*

26-30 *American Society of Mechanical Engineers, Chicago.*

29-30 *Pennsylvania Grade Crude Oil Association, State College, Pennsylvania.*

JULY

19-25 *World Petroleum Congress, London, England.*

SEPTEMBER

20-22 *National Petroleum Association, Atlantic City, New Jersey.*

25 *International Gas Conference American Gas Association (annual), Chicago.*

OCTOBER

24-26 *American Petroleum Institute (annual), Chicago.*

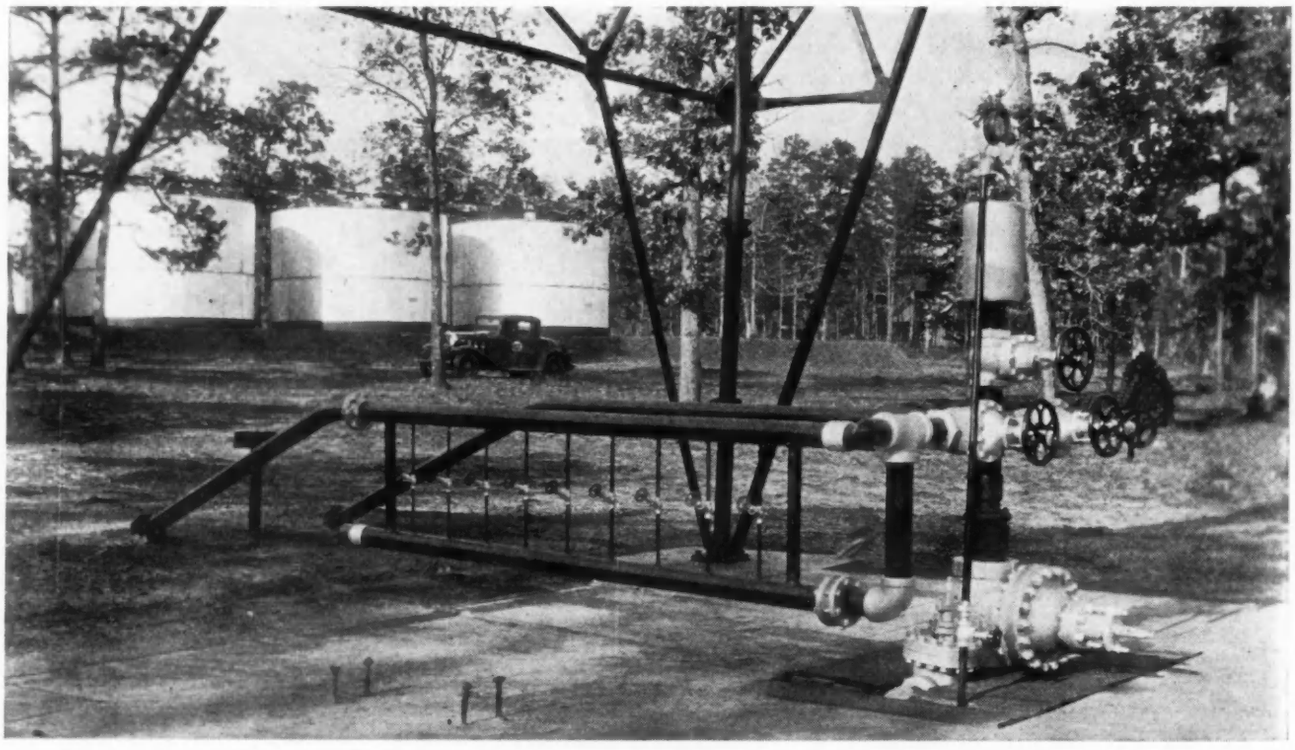
demand is attributed to lessened road construction and decrease in home and industrial construction where roofing materials are used. During the same period the decline was met by a curtailment in production of asphalt refineries bringing about a 16.8 per cent decrease and resulting in reduction of stocks of asphalt held at plants.

The 1932 domestic demand for petroleum and lake asphalt was 2,295,325 tons in 1932, a decline of 449,206 tons from the 2,744,531 tons reported for 1931. Of the 2,474,919 tons of asphalt produced at refineries in 1932, 1,359,372 tons were made from foreign crude oil imported principally from Venezuela, Colombia and Mexico. Sixty per cent of refinery asphalt sold for the past two years, has gone into street paving and road building, 29.2 per cent is used by the prepared roofing manufacturers, the remainder going into a wide variety of minor uses.

## Oil and Earthquakes

Seismographs were first borrowed by the oil industry from that branch of science concerned with the movements within the earth. Now maybe the oil industry can partly repay its obligation with the discovery that orifice meters, used widely in oil fields, can serve as recording instruments, when and if, earthquakes occur in their vicinity. Of course, such records would be of no value in forecasting probable quakes but at least they offer an interesting study of what takes place while the violence is being felt. California geologists and engineers are having a lot of fun trying to determine the causes and effects of the recent quake which did some damage to the oil fields of the Los Angeles Basin.

Page 33.



***A novel type hook-up used by the Continental Oil Company on its C. C. Crews No. 1 well in the East Texas field. The manifold flow arrangement is claimed to be particularly well suited for conditions in that area.***

# Federal Court Upholds East Texas Proration Order

## *Three-Judge Court Denies Injuntion in Decision From the Bench at Fort Worth*

Fort Worth, Texas.—Proration orders as now enforced in the East Texas oil field by the Texas Railroad Commission were declared valid in a bench decision rendered here May 26 by a three-judge federal court, following a two-day trial. In declining to grant interlocutory injunctions against the commission the court instructed attorneys representing the fifty odd major companies and independents listed as plaintiffs that the case would be tried on its merits within two or three weeks if possible for the judges to convene again within that period.

In view of the pending final hearing on the validity of the order governing the East Texas field, impression prevailed that the commission would stand firm on the present allowable of 827,000 barrels daily allowable and well potential basis rather than to run the risk of jeopardizing its preliminary victory.

All previous orders of the commission covering proration enforcement in the East Texas field have been stricken down when exposed to attacks in federal court. Favorable decision for the commission was announced by Circuit Judge Joseph C. Hutcheson, Jr., at the conclusion of a 10-minute recess taken by members of the court.

The taking of testimony and arguments submitted by attorneys prolonged the hearing longer than anticipated because of conflicting pleas entered by two groups of plaintiffs. One group contended that the current allowable of the field was not high enough and that acreage should be omitted as a factor in apportioning allowables while the other group including the major company plaintiffs stressed need for a lower allowable and incorporation of acreage as one of the factor in distributing allowables.

### To Try Case on Merits

Judge Hutcheson made it clear that the court desires to have the proration litigation carried to the supreme court in order that the matter may be settled for all times. He stated that the court may not hold to its present view of denying injunctions when the case again comes to trial on its merits. Hope was expressed that the commission would stand its grounds and not alter its method of proration so that the case would be declared moot before reaching a decision. He pointed out that litigation has been going on at intervals for some two and one-half years in the three judge court and that it is essential to have an end to this litigation. The commission appears to have gotten out in the field and is now doing its best towards attaining effective enforcement of the new order which has been in effect since April 24 stated the senior jurist.

He added that an opening is still available to the commission to later make revisions to its method of proration for the best interest of the state and operators. Announcement was made by the court that it had not reached a definite decision in regard to the use of the acreage factor which has been a bone of contention among large and small lease owners since the first attempt to prorate the field. Commission of acreage does not invalidate the order of the commission, according to the court.

It was quite apparent to observers at the hearing that the plaintiffs had not established a good case long before the concluding arguments were made by opposing attorneys. The state was adequately prepared to defend its position using the attorney general's staff exclusively for counsel and presented Gordon Griffin, petroleum engineer, attached to the proration staff, and J. S. Hudnall, Tyler, consulting geologist, as its principal witnesses.

Counsel for the plaintiffs based their case largely on the alleged inaccuracy of the key well gauges used for distributing allowables under the potential plan and disregard of the Commission's Rule No. 37 governing well spacings. Contention was also stressed that the prevailing plan in reality carries out the law of capture while under the statutes of Texas the property owner is entitled to only the oil in place when a field is operated under a restricted production basis. The victory won by the commission is a direct blow at proration violators in the East Texas field and will enable the state to augment its activities in stamping out operators engaged in exceeding allowables with some assurance that court convictions will stick.

### State Confident

The state has been confident that the present order would be upheld by a three-judge court and in recent weeks has been diligently ferreting out violators who have been jailed in some instances and receivers have been placed in charge of properties of chronic violators in nearly a dozen cases presented for trial in state courts. This possibility of an early termination of violations in the field is comforting to the more than half dozen major companies that were attacking the commissions order and lost.

Original complainants against the Texas Railroad Commission's proration orders as applied to the East Texas oil field since April 24 consisted of the Hunt Production Company, Tyler, and the Rowan-Nichols Oil Company, Fort Worth. Both concerns are known as observers of proration orders in the past. The former is the owner of the largest number of pumping wells in the field. These two original plaintiffs are strong contenders for the use of acreage factor in part as a method of apportioning allowables, and made contentions that the high allowable of more than 800,000 barrels daily for the field is out of line with the market demand.

### Score of Plaintiffs

Since the filing of the two original petitions for restraining orders against the commission's continued use of the straight potential basis for distributing the allowable of the field, more than a score of major and independent companies have added their names to the list of complainants. However, the additions include independents that are known as chronic violators of past or-

ders of the commission, and they sought relief from the court from the present order for the reason that the commission and members of the Attorney General's department have effectively applied enforcement within the past two weeks through prosecution of violators in state courts, and appointment of receivers for properties involved in repeated violations.

Due to conflicting complaints registered against the state by plaintiffs Circuit Judge Hutcheson, Jr., announced at the start of the Fort Worth hearing that counsel present should decide if their respective clients could combine their cases with the two original filings, else withdraw so as to avoid confusion and possibly a separate hearing could be scheduled for a later date for those electing to withdraw. This action removed most of the independents seeking to have the order declared invalid so as to resume untestrained production from the list of complainants going to trial.

District Judges Randolph Bryant, Sherman, and James C. Wilson, Fort Worth, shared the bench with Circuit Judge Hutcheson. The former has borne the brunt of the court litigation originating in the East Texas field due to his jurisdiction over the Eastern Division of Texas, and had on previous occasions given temporary relief to complainants against the commission to a limited extent while hearing was pending before a three-judge Federal Court on the issues at stake.

Complying with an advance request made by the court the attorneys representing plaintiffs lined up with the two original complainants submitted the bulk of their technical testimony in affidavit form. These documents were submitted by petroleum engineers, and set forth the physical characteristics of the field, with stress on the rapid dissipation of the flowing energy of the field because of the current high allowable, plus violations. Presentation of these affidavits for record was made by Hines Baker, counsel for Humble Oil & Refining Company, a plaintiff. Baker briefly summarized the contents of each.

An affidavit prepared by F. E. Heath, petroleum engineer, Sun Oil Company, Dallas, summarized physical conditions existing in the field, which has a length of 40 miles and an average width of four miles. He contended that the 300 key wells used by the commission in April to arrive at the open flow potential of the field so as to distribute production on a basis of 15 per cent of the rated hourly flow of such wells falling within a zone surrounding a key well has failed to interpret accurately the potential of a given area. He pointed out that some key wells are situated in a densely drilled area, while others are in areas where proper spacing has been observed. The field had been shut in prior to the taking of potential readings, thus permitting the former class of wells to register a potential comparable with low density well areas, although under actual operating conditions the closely drilled area would not make such a showing because of nearby drainage.

### Heath Testimony

Heath quoted experiences of his company in checking bottom hole pressure declines by offset wells during the potential readings. During the two-hour open flow gauge of Sun Oil Company's Beall 2 a pressure decline of 12 pounds was sustained by Beall 3, located 810 feet away, while a pressure decline of 21 pounds was sustained by the company's E. O. Henson 1 when its J. D. Henson 1, an offset, was opened. Another instance quoted was that a drop of 54 pounds was recorded by a well 90 feet removed from producer undergoing the two-hour open flow gauge. The pressure changes observed by offsets ranged from nine to 54 pounds, according to Heath, giving proof as to the extent of drainage when inequal withdrawals takes place in the field. He stated that when the oil and gas is withdrawn slowly the flowing energy of the field is conserved. When the field was restricted to an allowable of 325,000 barrels daily the bottom hole pressure declined at an average rate of .71 of a pound per 1,000,000 barrels withdrawal, while the average reservoir pressure drop has been stepped up to about 5 pounds per 1,000,000 barrels drainage since the application of the present proration plan. He expressed the opinion that the field's allowable should be distributed on a basis of acreage, sand thickness and bottom hole pressure as the principal factors in order to have an equitable plan.

Affidavits of somewhat similar nature were turned in bearing the signatures of H. M. Staggs and Oscar L. McElhenny, Atlantic Oil Producing Company; Geo. W. Nye, Tide Water Oil Company; R. O. Garrett, Arkansas Fuel Oil Company; V. C. Millican, Amerada Petroleum Corporation; Clyde B. Temple and T. V. Moore, Humble Oil & Refining Company; and John Bowen.

Temple quoted a recent report by the U. S. Bureau of Mines on conditions in the East Texas field, charging that when the reservoir pressure drops to 750 pounds that the gas comes out of solution. About 96 per cent of the propelling force is due to water drive until the gas comes out of solution. He stated that the field has averaged about 1,000,000 barrels production daily since April 24, and that the average bottom hole pressure was 1313 pounds on May 9, date of latest survey, while decline averaging 4.8 pounds daily under this rate of flow.

Judge Bryant interrupted Baker in his discussions on various affidavits to inquire if Humble Oil & Refining Company had not taken the position from the start that production should be restricted to about 350,000 barrels daily. He gave an affirmative reply.

References made repeatedly by witnesses as to over-production of the field without revealing figures prompted Judge Hutcheson to express surprise that no one apparently was able to tell the court how many barrels of oil have been going out of the field daily.

Gordon Griffin, petroleum engineer for the commission, testified that he helped prepare proration schedules allocating well allowables under the potential flow plan. Testimony was given that the commission used only 271 of the readings on 300 key wells in preparing its schedule. Haste required in drafting the first schedule resulted in numerous errors being discovered later, and for this reason a revised allocation table was put into effect May 17. These errors were to have been

(*Continued on page 37*)

## PLAINTIFFS

**Plaintiffs in the Federal Court attack on the validity of the current proration orders of the Texas Railroad Commission as applied to the East Texas field since April 24 follow:**

**Hunt Production Company, Tyler.**

**Rowan-Nichols Oil Company, Fort Worth.**

**Humble Oil & Refining Company, Houston.**

**The Texas Company, Houston.**

**Sun Oil Company, Dallas.**

**Atlantic Oil Producing Company, Dallas.**

**Tide Water Oil Company, Houston.**

**Yount-Lee Oil Company, Beaumont.**

**Arkansas Fuel Oil Company, Shreveport.**

**J. S. Bridwell, Wichita Falls.**

**Petroleum Producers Company, Wichita Falls.**

**United Producers Company, Wichita Falls.**

**W. B. Hamilton, Wichita Falls.**

**Fain-McGaha Oil Corporation, Wichita Falls.**

**E. L. Smith Oil Company, Mexia.**

**Neversuch Oil Company, Mexia.**

**Stroube & Stroube, Corsicana.**

**R. L. Wheelock, Corsicana.**

**J. L. Collins, Corsicana.**

**Jake Hudson, Corsicana.**

**Levalma Petroleum Company.**

**Turman Oil Company, Tulsa.**

# East Texas *Could Be Quickly* Curbed *If Federal* Control Bill Passed

Kilgore, Texas.—Groundwork for almost instantaneous curb of over-production of crude in the East Texas field is within the grasp of United States government through various federal agencies now on duty in the field should federal oil control materialize.

Concentration of a corps of agents of the Internal Revenue Department and a supporting staff of the Intelligence Department since the first of the year in this particular field to enforce collections and ferret out violators of the 1932 revenue acts governing taxes on gasoline and pipe line revenues affords the government complete coverage on all oil movement. Recent aggressiveness on the part of the tax agents in making collections on the four per cent tax that applies to all pipe lines handling oil in excess of 1½ miles distance; for loading of tank cars in or near field, and tankers at tidewater, has netted the government an ideal set of records to utilize in the event an oil control bill is approved by congress.

Due to the enforcement of the tax governing the operation of pipe lines and tank car racks the Internal Revenue Department has a more accurate check on oil movement within and from the East Texas field than state authorities, or co-operative scouting activities of the oil companies.

Although this data on tax renditions is withheld from the public as well as the proration enforcement officers of the state, it will be available to any oil control body voted into power by congress because of the special tax proposed for illicit oil and for supporting the federal control forces.

The Internal Revenue Department was slow in setting up a field organization to go after evaders of the one-cent per gallon tax on gasoline from the 50-odd refineries in the East Texas area, and the oil pipe line transportation tax. Both revenue acts were effective last June 21. Tax dodgers went virtually unmolested for some months, and ignored the regulations calling for the maintenance of a complete set of records. Because of resourcefulness of the evaders of these taxes the government has found it necessary to concentrate a staff of intelligence men, including some that have seen duty in dealing with income tax dodgers within the ranks of Chicago gangsters, in order to cope with the situation.

The educational period for operators of pipe lines and refineries has passed, and those that fail to use dilligence in settling for the federal tax are being placed in the same category as willful evaders. It is understood that a number of refiners and pipe line owners, heretofore prominently identified with the handling of oil produced contrary to regulations in the East Texas field are to be confronted with charges of having failed to render, or for falsifying on tax matters.

## 37,000,000 Barrels Empty Storage Room in Texas

Austin, Texas.—There were 49,298,915 barrels of crude oil in storage by pipe line companies in Texas on May 20, according to a special report compiled by the Texas Railroad Commission.

Governors Langdon of Kansas and Murray of Oklahoma had expressed a desire to determine the amount of oil in storage, charging that the major companies were seeking to refill depleted reserves with cheap oil.

The Texas Commission wired each pipe line company asking that a report be filed by telegraph indicating the amount of oil on hand at 7 a.m., May 20.

Details are set out in the attached table.

## New Oklahoma Law Holds In Three-Judge Court

Oklahoma City.—Oklahoma's new proration law enacted by the fourteenth session of the legislature, withstood successfully its third legal attack on Friday, May 19, when three federal judges dismissed the injunction suit filed by the Sterling Refining Company of Tulsa. Attorneys for the refining company served notice of appeal in open court, when their right to produce two wells in the Oklahoma City pool to a maximum of 5000 barrels daily was denied. George T. McDermott, judge in the circuit court of appeals; and F. E. Kennamer and Edgar S. Vaught, federal district judges, sustained the motion to dismiss the suit.

### Comparative Report of Texas Pipe Line Storage For April 30, and May 20, 1933

Especially Compiled by the Railroad Commission for the Latter Date

| Company— | Storage April 30 | Storage May 20 | Empty Storage May 20 |
|---|---|---|---|
| American Pet. Co. | 207,172.00 | 189,449.00 | 950,000.00 |
| Arkansas P. L. | 30,891.05 | | |
| Atlantic P. L. | 4,487,244.27 | 4,690,186.00 | 3,638,539.00 |
| Barnsley, Foster | | 600.00 | 2,000.00 |
| Bell Oil & Gas | 5,785.00 | | |
| Big Spring P. L. | | | 11,000.00 |
| Col-Tex Refg. Co. | 153,611.86 | | |
| Chapman P. L. | | 54,093.86 | 108,385.47 |
| Continental Oil | 2,152,652.36 | 2,053,000.00 | 483,000.00 |
| Duncan-Wichita Falls | | 4,600.00 | 6,000.00 |
| Emerald Oil Co. | 428.00 | | |
| Empire P. L. Co. | 522,106.00 | 582,000.00 | 96,000.00 |
| Gulf P. L. | 1,793,701.00 | 2,277,739.00 | None |
| Humble P. L. | 8,270,817.12 | 8,119,900.00 | 9,413,700.00 |
| Illinois P. L. | 286,965.46 | 303,000.00 | 656,000.00 |
| Inland Waterways | 27,530.88 | | |
| Kent Refg. Co. | | 5,900.00 | 283,000.00 |
| Liberty P. L. | 23,223.22 | 10,581.96 | 9,339.10 |
| Los Olmos P. L. | 1,335.89 | 2,049.56 | 481.94 |
| Magnolia P. L. | 15,004,567.00 | 15,337,215.00 | 11,209,500.00 |
| Panola P. L. | 1,067.34 | 2,265.00 | 4,674.00 |
| Pasotex P. L. | 266,106.00 | | |
| Rosenburg, B. | | 8,697.88 | 25,302.12 |
| Shamrock O. & G. | | 5,268.00 | 15,500.00 |
| Shell P. L. | 1,600,000.00 | 1,725,000.00 | 2,965,000.00 |
| Sinclair-Prairie | 2,725,436.99 | 2,770,885.58 | 1,745,359.18 |
| Simms Oil Co. | 25,697.29 | | |
| Stanolind P. L. | 1,653,102.60 | 1,379,350.00 | 630,815.00 |
| Stanolind O. & G. | 4,369,397.29 | 4,408,853.00 | 521,346.00 |
| Sun P. L. | 367,502.00 | 484,000.00 | 345,000.00 |
| Texas-Empire | 446,588.00 | 346,341.00 | 214,049.00 |
| Texas P. L. | 5,139,150.00 | 4,251,699.00 | 4,953,245.00 |
| Thurber P. L. | 33,821.00 | 34,824.00 | 40,176.00 |
| Tyler P. L. | | 79,500.00 | 20,000.00 |
| Waggoner P. L. | 225,759.64 | 95,000.00 | 15,000.00 |
| Yount-Lee P. L. | 223,464.44 | 156,830.00 | 172,021.00 |
| Total | 44,957,464.91 | 49,298,915.84 | 37,636,232.41 |

# Interior Secretary Not to Be Dictator Under Revised Bill

Washington, D. C., May 26.—Revised legislation to control the oil industry (for incorporation in the Industrial Recovery bill), today was introduced in the senate by Senator Capper of Kansas as the senate finance committee began hearings on the petroleum situation.

Following the general lines of the Capper-Marland bill, the new measure's most important difference is a provision that the dictatorship over the oil industry need not be placed by the president in the hands of the secretary of the interior, but shall be exercised by a administrator who is to be an official of the government. In view of the proposal to incorporate the measure with the Industry Recovery bill, this would leave the way clear for administration of both by the same official.

Appearing before the finance committee to give oil legislation his approval, Secretary of the Interior Ickes explained that it would prevent the transportation of illegally produced oil and the government would allocate to the oil states their proportions of the total market demand.

Most of the changes in the oil bill, he said, have been for the purpose of making it harmonize with the Industrial Recovery measure. Two months have elapsed since the adjournment of the oil conference which he called in March, the secretary told the committee, and nothing has been done to correct the abuses in the industry, and the several states have confessed their inability to deal with the situation.

### Secretary Ickes Talks

"If oil were not so essential to the very life and well-being of our country, if it were not an irreplaceable natural resource, we might with complacence sit by and watch the producers kill themselves off if they lacked the enterprise or the will to take hold of their own situation and remedy it," he declared. "But the federal government has a paramount interest in this industry."

"The situation," he continued, "is imperiling all our plans for an early and orderly economic recovery. We cannot be prosperous if the second largest industry we have is allowed to run amuck."

Many of the witnesses appearing before the committee, including Representative Marland of Oklahoma, who sponsored the Oil Control bill in the house, expressed the belief that the Industrial Recovery bill alone was not sufficient to meet the particular needs of the oil industry.

### Pipe Line Bill

Discussion of the interior department study of the oil situation brought out the fact that the attorney general is not yet satisfied that pipe lines can be divorced from other branches of the oil industry and that the question is to be given further consideration before any effort is made to deal with it. The new Capper bill, however, it was said, provides that the administrator shall investigate pipe line charges and practices apparently with the view of finding out whether the major oil companies who own the lines can fix the field prices for oil.

It was stressed by Solicitor Margold of the interior department, who drafted the bill, that the measure is to cover interstate operations only and is not to supersede the state's authority with respect to production, although, he said, the industry will also be subject to the provisions of the general industry control bill.

Provisions of the bill exempting from import restrictions foreign oil which is processed here and re-exported drew attacks from Senator Connally of Texas, who declared that so long as domestic production is limited there should be an embargo on all imports, labeling as "fiction" the claim that such imports would aid American labor.

Connally was joined by Senator Reed of Pennsylvania who pointed out that since the Recovery bill will increase wages and production costs there must be some action against imports to protect the domestic market.

### Fix Minimum-Maximum Price

As in the general Recovery bill, provision is made in the Capper measure against unfair competition, the administrator being given authority to establish minimum and maximum prices for crude oil and refined products. He is also powered to investigate monopolistic practices to the industry.

Little opposition was expressed to the measure by oil men appearing at the hearing, other than Jack Blalock of Marshall, Texas, representing the Texas Independent Association, who contended there is no emergency and that oil is in a better position than any other commodity with the vast majority of those in the business making a profit.

Asserting that the oil industry has a code of practices such as proposed in the Industrial Recovery bill, which has been approved by the Federal Trade Commission, Russel Brown, counsel for the Independent Petroleum Association of America, declared, "What the industry needs is not a code but a director. It requires some authority who shall take a national and not a limited view of the questions involved," he said.

### Minority Blamed

A small minority of producers who refuse to be "good neighbors" to the extent of accepting fair and equitable allocation of production in the states and within the individual pools in the state was charged with responsibility for the break-down in state control by Charles F. Roeser, representing five Texas oil organizations. Federal intervention was declared to be "imperative" and if not undertaken, "the oil industry as a whole will be facing a very serious situation not only from the standpoint of bankruptcy to the producers themselves but by the throwing out of employment thousands of men."

The Texas Railroad Commission, having placed allowable production at practically double the market requirements, was charged by Joseph S. Bridwell, president of the North Texas Oil and Gas Association, with having made relief impossible under state regulation.

The hearings will be resumed Monday.

## Allred Resumes Texas Ouster Hearings

Austin, Texas.—Hearings in the Allred anti-trust suit against 15 major oil companies and two associations were resumed this week.

L. H. Flinn, executive of the Texas Petroleum Marketers' Association, appeared before Special Commissioner George E. Shelly, to detail the history and activities of this association.

The evidence obtained in these hearings before the commissioner will be introduced when the actual trial of the case begins.

Flinn was called upon to tell how and why major oil companies, who were denied the right to vote in association meet-

# In East Texas

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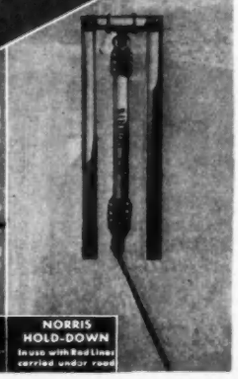
QUALITY PRODUCTS
TULSA, OKLA.

QUALITY
SUPER STRONG

NORRIS MULTIPLIER
For Increasing or Decreasing Polish Rod Stroke



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In use with Rod Lines carried under road

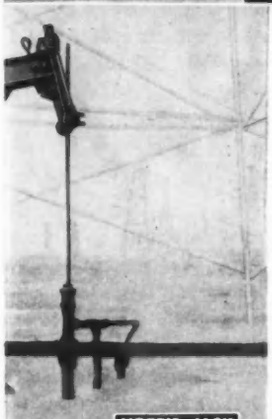
**Today, NORRIS Pumping Equipment dominates the fields of East Texas, just as it has been chosen by the major companies in all important oil fields for over fifty-one years. NORRIS has never tampered with Quality, and because of this fact, the companies that have always specified – W. C. NORRIS, are today finding this equipment paying them dividends in longer life and more satisfactory service.**

NORRIS HOLD-DOWN
(Can also be used as a holdup)

NORRIS SUPER STRONG SWING
Custom built to any desired angle

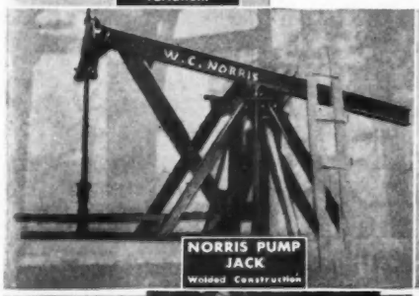
## OVER HALF A CENTURY EXPERIENCE

**Designed by men of long oil-country experience, NORRIS Pumping Equipment illustrated in use by the major companies has been especially built to meet the requirements of East Texas. All NORRIS Equipment is built to meet the individual requirements of the job and carries an *UNQUALIFIED GUARANTEE backed by over a half century oil country manufacturing experience*. Write us for complete descriptive material on any NORRIS Quality Equipment. If you have a special problem let our engineers work it out for you. Our Kilgore store is specially located to adequately serve East Texas – Use it. Make it your headquarters.**

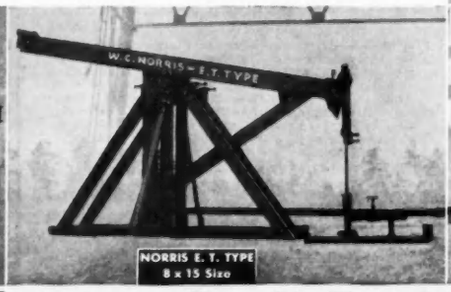


NORRIS JACK
With 52" Straight Stroke having no variation.

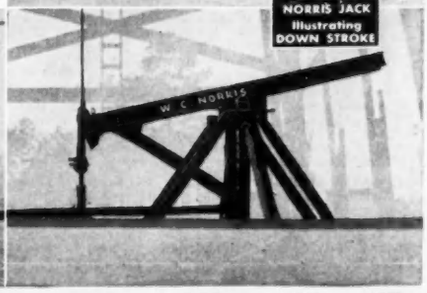
Illustrating UP Stroke
NORRIS JACK
Illustrating DOWN STROKE



NORRIS PUMP JACK
Welded Construction



NORRIS E. T. TYPE
8 x 15 Size



at Kilgore

# W. C. NORRIS
## MANUFACTURER

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W. C. NORRIS MANUFACTURER, TULSA, OKLAHOMA
Equipment Desired
Individual
Company
Address
O. W.

ings, were induced to contribute as much as $3000 annually to its support.

He explained that the chief purpose of the association was to foster better marketing conditions among independent retailers, and to prevent the unfair marketing practices, such as tax evasions, which had become prevalent.

Members of the attorney general's department sought to show that the chief work of this association was to assist in the installation of the American Petroleum Institute "Code of Ethics" on marketing practices, and to "sell" their membership on this idea.

All records of the marketers' association pertaining to this work were brought to Austin and carefully read into the record of the case. Most of Flinn's testimony consisted of identification of these records.

Members of the attorney general's department who are handling this phase of the case were unable to say when it might come to trial.

---

Tulsa.—Oklahoma Pipe Line Company, Standard Oil Company of New Jersey subsidiary, will occupy quarters on the seventh floor of the Exchange Bank Building here. Headquarters of the pipe line company heretofore have been in Muskogee, Oklahoma.


# Careful Buyers!

***Here are a few of the hundreds of attractive values in both new and used material that we can supply from branch store stocks in the various territories. If you don't find what you need listed here, tell us what you want and we can likely supply it at prices that will interest you.***

**BLOCKS—ROTARY CROWN—New**—One only, 5-Sheave, Type B, "Regan" Latest Type Crown Block with Catline Attachment. Price f.o.b. Conroe, Texas .....$1,050.00

**BLOCKS—ROTARY TRAVELING—New**—One only, 76 in. 4-Sheave, Type 3-B, "Regan" Late Type Rotary Traveling Block with Guards. Price f.o.b. Conroe, Texas .....$1,450.00

**BOILERS—New**—One only, 100 h.p., 250 lb. W.P. ASME Code Firebox, A.P.I. "Lucey" Center Dome Boiler Complete with stack, guy wire, and standard fittings. Regularly sells for $2,735.00. Close out price, f.o.b. Pampa, Texas....$1,750.00

**BOILER—Used**—60 h.p., 150 lb. W. P. Lucey, Center Dome Boiler with stack, and partial set of fittings. Boiler used only 15 days. Good as new. f.o.b. Pampa Store.....$350.00

**CABLE TOOLS—New**—Bridgeport Drilling and Fishing Tools of all kinds, 50 to 90 per cent discount from regular prices.

**CORE BITS—Used**—(2) 11 in. Type C, Hughes Core Bits. Time limit type, complete with new hard formation cutter heads. These bits have been used very little and are practically the same as new, f.o.b. Oklahoma City, each.....$490.00

**CORE DRILL MACHINE—Used**—"Dempster" Hydraulic Rotary Core Drilling Machine. A complete unit with power, pump, drawworks, rotary table, 650 ft. of 2 in. drill pipe with tool joints, etc., f.o.b. Russell, Kansas.....$500.00

**DISC BITS—Used**—(1) 11 in. Washpipe Type Gulberson Disc Bit with new Discs. f.o.b. Kilgore, Texas .....$116.75
Several 12 in. and 12½ in. Regular Gulberson Disc Bits with new Discs., f.o.b. Oklahoma City Store, each .....$136.00

**ENGINE CLUTCH—Used**—Superior, Type C-12A Reversible Clutch for 50 or 40 h.p. Superior Engine. Complete in every detail with outboard bearing. Has been overhauled in our shops. f.o.b. Wichita .....$150.00

**"FAIRBANKS-MORSE" PUMPING ENGINE—Used**—40 h.p. latest type "Fairbanks-Morse" Gas Pumping Engine complete with late type Reversible Clutch and water circulating pump. Completely overhauled in our shops. Guaranteed A-1 condition. F.O.B. McPherson Store.....$975.00

**FLOATS—HYCHROME DRILL PIPE FLOATS—** Regular Bridgeport Hychrome Drill Pipe Floats successfully used for years and positively guaranteed. Stocks being moved at reduced prices to make way for improved design. Close out prices; 3 in. $40.00; 4 in. $50.00; 6 in. $75.00.

**GAS BURNER—Used**—Almost new "Deck" Gas Burner. F.O.B. Oklahoma City Store.....$75.00

**GASOLINE DRILLING ENGINE—Used**—150 h.p., 6 cylinder Wright Reliable Drilling Engine complete with Clutch. Has drilled only one well. Price new $7,000.00. A real bargain. F.O.B. Wichita .....$1,250.00

**GAS SEPARATORS—Used**—(1) Type 10, large size, Smith Gas Separator. Used only on one well. Practically same as new.
F.O.B. Pampa .....$550.00
(1) Type 1, Smith Gas Separator in first class condition. F.O.B. Pampa.....$450.00

**HOSE—ROTARY—New**—2—"Champion and Barber" 3 in. x 50 ft., 7-joint, All Steel, latest Oklahoma Type, Steel Rotary Hose. Regular price $825.00. Special close out price, f.o.b. Oklahoma City, each .....$300.00

**IDECO DERRICK—Used**—74 ft. Type "A" Galvanized Steel Derrick with heavy reiegs, new O. C.S. Chain Driven Sand Reel; complete set 6 in. Parkersburg Rig Irons; Parkersburg 12x7½ ft. Steel Bull Wheels; 7½ in. Steel Calf Wheels; Large Corrugated Roof and Wood Siding Belt and Engine House; Wood Walking Beam; Wood Pitman; Set Wood Timbers; 5-Sheave Steel Cable Tool Crown Block. McPherson territory.$1,600.00

**KLEEN-A-WELL—**High grade Paraffine Remover and Acid Well Cleaner. In Stock at Russell, Kansas; Pampa and Kilgore, Texas.
In one-gallon pails.....per gal. $3.00

**PUMPING ENGINE—Used**—25 h.p. 4 cycle, Superior Gas Pumping Engine with Reversible Clutch. Engine has been overhauled and is first class. F.O.B. Kilgore .....$250.00

**REAMERS—ROTARY REAMERS—**Regular Bridgeport Double 3-Point Rotary Reamers, only slightly used. Have new cutters and are practically the same as new reamers. Prices apply only to one or more of each size on hand.
8⅝ in. and 9⅞ in., each $250.00; 11 in., 12 in., and 12½ in., each $400.00; 13¾ in., each $500.00; 17½ in., each $900.00.

**ROCK BITS—Used**—(2) 12 in. Hughes Rock Bits complete, with new cones. These bits seen little use and are good as new. Okla. City, ea. $260.00
(1) 8⅝ in. Hughes Rock Bit complete with used cones, Kilgore .....$125.00

**ROTARIES—Used**—In stock at Pampa and Conroe, Texas. Equipment includes Boilers, Engines, Mud Pumps, Rotary Tables, Drawworks, Kellys, Swivels, Hooks, Traveling Blocks, Crown Blocks, Weight Indicators, Generators, Elevators, Tongs and all equipment required for the particular field. Separate units may also be purchased. Itemized lists of material, prices and full information furnished on request.

**STEEL STORAGE TANKS—Used**—Several 250 Bbl. Steel Storage Tanks with Tops, In stock at Wichita .....$60 to $100

**WATER PUMPING OUTFIT—Used**—Novo High Pressure Type S, 4 h.p. hopper cooled gas or gasoline Novo Engine; and 4x5 single cylinder, 1500 gal. per hour replacement capacity Novo Pump. Pump, Engine and gears mounted as one integral part on steel skid base. Engine and Pump has been thoroughly overhauled in our shops. F.O.B. Wichita.....$140.00

**WIGLE HOOK—Used**—8 in. Ideal Spring Swivel Wigle Hook with Safety Latch. Same as new. F.O.B. McPherson .....$600.00

***Telephone or Wire . . . Collect . . . for prices and lists of other low priced equipment.***

CONROE, TEXAS
KILGORE, TEXAS
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**BRIDGEPORT MACHINE COMPANY**
MANUFACTURERS DISTRIBUTORS
OIL DRILLING-FISHING AND PRODUCTION EQUIPMENT

OKLAHOMA CITY
McPHERSON, KAN.
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## Anti-Monopolists Urge Pipe Line Separation

Washington, D. C.—Declaring separation of pipeline activities from production to be more important than Federal control of output or a ban on the shipment of illegally-produced oil, representatives of the Independent Petroleum Association Opposed to Monopoly on May 24 told Secretary of the Interior Ickes that they could not support the Capper-Marland measure unless provision was made for pipelines.

Two other changes must be made in the bill to secure the support of the organization, it was declared, one being the provision for the establishment of proration by potential well capacity rather than by acreage, and the other to provide that suits to test any orders under Federal control operations may be brought in any United States district court.

These recommendations, it was stated by Jack Blalock of Marshal, Texas, secretary of the Association, are designed "to bring the oil bill into line with the recommendations of President Roosevelt in his telegram of April 3 to the governors of 17 oil-producing states." The changes, it was urged, should be included whether the bill is passed as an independent measure or incorporated in the general industrial recovery act.

"The 'capacity' measure of proration is a vital issue between majors and independents," it was declared, following the conference by Guy W. Finney of California. "The former favor proration on an acreage basis because they have more acreage in proportion to capacity. The latter urge proration on a well-capacity basis as the only method fair to both large and small producer. The bill as drawn is silent as to which method shall be used. At the hearing today we contended that the capacity method should be written into the law as a protection to small producers.

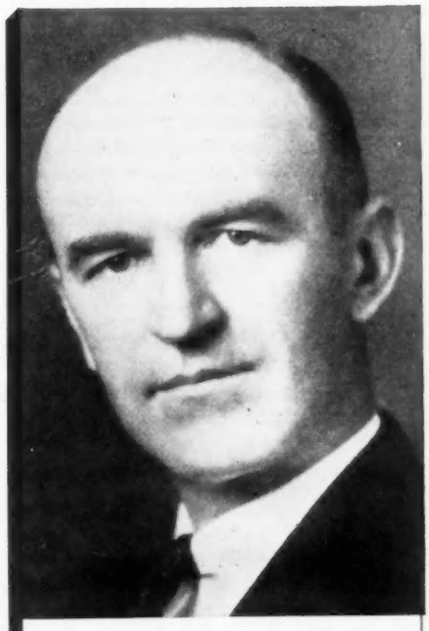
## Deep White Point Test Plugged Back for Gas

San Antonio, Texas. — Saxet Oil Company has finally given up its deep White Point prospect and is completing it as a shallow gasser at 2583 feet. The well, Rachal 19, J. N. Seguin survey, San Patricio County, encountered several likely oil sands. It plugged back from 7205 to 4860-70 feet, attempted to make a producer and failed, and has plugged to the regular gas level. Tubing is being run.

# MEN IN THE INDUSTRY'S NEWS

## CHASE E. SUTTON

**General Manager Gulf Coast Producing Division**
**PURE OIL COMPANY**



CHASE E. SUTTON

Chase E. Sutton, general manager Gulf Coast producing division, Pure Oil Company, 36 years of age in May, is one of the younger major executives in the Gulf Coast.

What he lacks in years has been more than made up for in results: Gueydan and Louise, two new fields around which his company holds practically all worthwhile acreage.

It is difficult to get Chase Sutton to stay put in one place long. He moves fast. His men follow confidently. The "Old Man," as he is affectionately known, has built up quite an esprit de corps.

Helena, Montana, was his birthplace. Grammar, high school and university work in California nearly made him a Native Son. He liked the country—found there his charming wife, nee Vida L. Eakin of Taft, now mother of his six year old son.

A youth of 20, Mr. Sutton entered the engineering department of Union Oil Company of California, staying until the call to arms. His commission is U. S. Naval Ensign, engineering. Naval experience was followed by work with Interstate and Lakeview Oil Companies, California, from which he took leave of absence to serve as inspector and petroleum engineer for California State Mining Bureau, returning to the companies as production engineer in charge of field operations. In 1926 he went with the United States Bureau of Mines at Dallas, Texas.

Mr. Sutton has been active in production development in Midway, Sunset, Elk Hills, Signal Hill, Huntington Beach and Montebello in California, and Champagnolle, Arkansas. As engineer of U.S.B.M. he completed reports on Powell, Wortham, and Texhoma-Gose fields, and on results of geophysical prospecting as of January, 1928.

Service with Pure Oil Company started June, 1928, as production engineer at El Dorado. In December Tulsa took him as division production engineer. And September, 1929, brought him to Houston as manager of the Gulf Coast district of the Fort Worth division. When the Houston district was made a main division of Pure Oil, Mr. Sutton was made general manager.

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**GEO. L. BRADFORD** of Tulsa, one of the oldest field men, in point of service in the oil country equipment business, has recently moved to Houston, where he is now making his home. Bradford, originally from the West Virginia and Pennsylvania oil territory, served Parkersburg Rig & Reel Company 10 years, and has during the past 30 years been associated with practically every major supply company in the country.

**B. H. VAN DER LINDEN,** head of production for the Royal Dutch Shell interests, recently left Cafilornia after an extended visit, and is now spending some time in the Mid-Continent. He will return to Europe later this year.

**W. H. LEONARD,** Gardner-Denver Company, Quincy, Illinois, has sailed for London on a business trip which will keep him away from his office until August.

**HENRY B. MAY,** president of the Arrow Refining and Producing Company, owner of a refinery at Overton, Texas, and also head of the Inland Waterways Pipe Line Company, which is supplying the plant with East Texas crude, has transferred headquarters from Overton to Fort Worth, where offices have been located on the 19th floor W. T. Waggoner Building. H. B. May, Jr., sales manager, has also moved to Fort Worth.

**G. W. HOLLAND,** representing the Department of the Interior at Washington, will return to the capital next week, upon completion of the special assignment which called for some kind of cooperative drilling on the Middle Dome at Kettleman Hills.

**CLAUDE GOSS** and R. E. Dukich, drilling foremen for Shell Oil Company, have sailed from Los Angeles for Venezuela on an extended service contract.

**GEORGE D. OLDS, JR.,** has been appointed assistant to the president, chairman of the advertising committee and chairman of the manufacturing and sales committee of the Continental Oil Company, according to announcement of Dan Moran, president. Olds attended Amherst college and after graduation became connected with R. H. Stearns & Company of Boston and with W. H. McElwain Company, shoe manufacturers of Boston. He was for 12 years sales manager of Hills Brothers Company, during which time he was president and director of the Associated Grocery Manufacturers of America. Recently Olds has been president of the Emergency Exchange Association, an unemployment relief agency in New York City. After completing an inspection tour of Continental properties he will make his headquarters in New York.

**C. C. SUTTON,** storekeeper for Shell Oil Company in northern Venezuela, is spending his vacation in California, and will return to his post in June.

**DANA HOGAN,** independent operator of Los Angeles, has been living in Bakersfield for several months while supervising operations for his organization.

**CARL LEE,** drilling superintendent for Shell Petroleum Corporation at Houston, has been spending some time in California.

**H. E. POTTER,** chief engineer for Seal Power Corporation, discussed "Motors and Motor Troubles," at a meeting of the Petroleum Motor Transport Association, held in Tulsa on Friday, May 26.

**J. C. SIEGEL,** general superintendent of the tubular division and E. P. Corey, general manager of tubular sales for Youngstown Sheet and Tube Company, Youngstown, Ohio, spent several days in Tulsa following the American Petroleum Institute meeting visiting with H. B. Duffield, district sales agent for the company.

**CLIFFORD COOPER,** assistant state oil umpire in Kansas, recently departed from the bachelor class when he was married to Miss Helyn Campbell, secretary to Bob Isreal, city commissioner. Mr. and Mrs. Cooper are making their home in Wichita.

**E. G. DAHLGREN,** assistant state proration umpire in Oklahoma and former chief clerk of the proration force under Colonel Cicero Murray, was a Tulsa Visitor.

**FRED W. CORDELL,** has been transferred to Tulsa in the role of division sales manager in Oklahoma and western Arkansas for Phillips Petroleum Company. Cordell entered the oil business with the old Waite Phillips Company and joined Phillips Petroleum Company in 1928, since that time having served as division sales manager in Peoria, Illinois, Springfield, Kansas City, and St. Louis.

**L. J. FAIRCHILD,** sales manager in the Coffeyville, Kansas district of the Standard Oil Company of Indiana, has been transferred to Tulsa to become acting sales manager in that district.

**GROVER W. LAVERY,** manager of the Okmulgee store of the National Supply Company, was a Tulsa visitor during the week.

**J. A. BRANT,** geologist in the Tulsa office for Atlantic Oil Producing Company, will participate in an archery contest in St. Louis on May 30. Brant is well known in archery circles and is editor of a magazine devoted to that sport.

**DICK GUIBERSON** is again a resident of Los Angeles, after spending more than two years at headquarters in Dallas. The Guiberson-Crippen Company has been formed with offices and headquarters at 723 East Gage Street, Los Angeles, as West Coast distributors for the Guiberson line of equipment.

**M. M. McCABE,** 61, president of the Mintex Oil Company and Golden Petroleum Company, producing concerns in the West Texas district, died in a hospital at San Angelo, Texas, May 20 following a brief illness. He had been active in development work for the past four years, having previously engaged in the grain business at Duluth, Minn., where the body has been shipped for burial.

**DR. J. McCLELLAND HENDERSON,** who has been studying the Sutherland Areas in Palestine and Trans-Jordan for the past 10 months, has been joined by J. A. Child, F.G.S., A.M.I.M.E., and by R. Mitchell, Assoc. Inst. M.M., and all three are now engaged in an intensive examination of the southern coasts of the Dead Sea.

**G. R. JORDAN,** former member of the land department for Roeser & Pendleton, Inc., oil producers with headquarters at Fort Worth, Texas, is now located at Fordyce, Arkansas, and at work in assembling wildcat acreage for the drilling of several tests shortly.

**JOHN M. LOVEJOY,** president of the Seaboard Oil Company of Delaware, New York City, visited the Texas operating headquarters of the Texas-Seaboard Oil Company, a subsidiary, at Dallas late last week. The latter is co-owner of a large number of prolific leases in the East Texas field, and is aggressive in blocking up wildcat acreage in various sections of the state.

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Austin, Texas.—Under a bill now pending in the Texas House of Representatives, 4000 acres of Indian Reservation lands in Polk County would be opened to oil leasing under the supervision of the State Board of Control.

This land was granted to the Indians in 1854, when the tribe was moved into Texas from Alabama.

The bill was introduced late in the session, but since it has been uncontested so far, it is possible that it may be passed during the early part of the week.

# Progress Made *in Reducing Lost Time* Accidents In Oil Industry

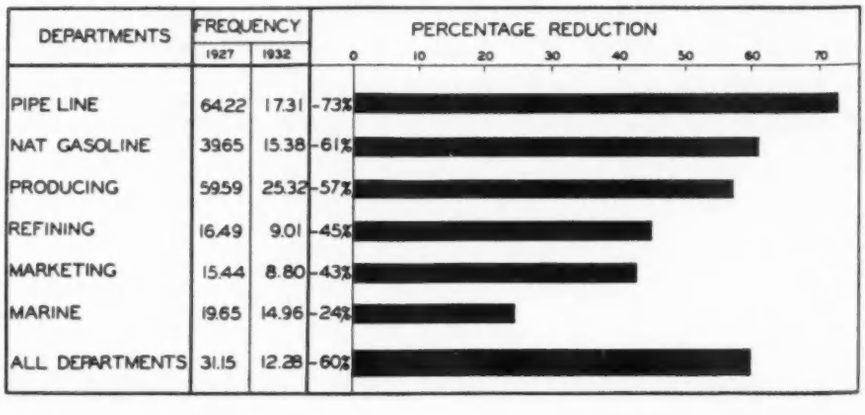
GREAT progress has been made in the oil industry in reduction of accidents and injuries, according to the annual summary of injuries issued by the American Petroleum Institute office at Dallas in April.

Disabling injuries have been reduced 60 per cent in the last six years. Experiences were 13 per cent less frequent in 1932 than in 1931. Reports of accident experiences from 226,304 workers, representing 101 companies, showed an accident frequency of 12.28 injuries for each million hours worked. Loss of time from accidents amounted to 1.91 days for each 1000 hours worked. These figures are based on a yearly working time per man of 2500 hours.

It is estimated, based on accident rates in 1927 and costs thereof, that accident prevention practices saved $3,209,400 in 1932 for the 101 reporting companies.

**PERCENTAGE REDUCTION IN FREQUENCY OF DISABLING INJURIES IN THE PETROLEUM INDUSTRY**

**Classified by Departments—Year 1932, Compared with 1927**



# Oil Equipment Exposition *Brings Out Many* New Field Specialties

Houston.—Including numerous types of drilling and production equipment and specialties and representative lines of pipe line, oil field transportation, refinery, and marketing equipment, the exhibits displayed here at Convention Hall May 22-28 at Oil Equipment and Engineering Exposition's fourth annual oil show comprised products of 212 different manufacturers; and exhibitors and management were sufficiently well pleased with attendance at the exposition and interest taken in it by the industry that plans have already been announced for repeating the show in Houston next April.

An important feature of the exposition last week was the awarding of three prizes, all silver cups, to companies adjudged to have the best displays, the judges being three Houston men engaged in advertising and publicity work. First prize was awarded Norvell-Wilder Supply Company of Beaumont, Texas, which exhibited numerous specialties and pieces of equipment in the large space for which it had contracted. Second prize went to Halliburton Oil Well Cementing Company, of Duncan, Oklahoma, which had on display one of its big, modern, oil well cementing trucks, and various Halliburton products. The third prize was awarded to the exhibit, housed under canvas in front of the exposition hall, of Portable Rig Company, Incorporated, Houston, Texas, featuring rotary drilling machinery of Waukesha Motor Company, Waukesha, Wisconsin.

Although the displays consisted largely of small tools and specialties, there were also some exhibits of slush pumps, drilling engines, pipe line and power pumps, blowout preventers, and other assemblies of heavy equipment. Other displays of interest to persons in the production division of the industry included rotary swivels, drilling hose and wire rope, screens for cleaning rotary drilling mud, and all kinds of fishing tools. Outside the exposition hall were various displays of production and drilling equipment, including a 122-foot steel derrick, Diesel

(*Continued on page 36*)

### To Exhibit Next Year

**The fifth annual Oil Equipment & Engineering Exposition will be held in Houston, Texas, April 16-22, 1934, in Convention Hall, according to announcement from E. G. Lenzner, general manager, late last week. Plans are already under way to modernize Convention Hall and enlarge the exhibit space by removal of seating arrangement originally built into the building, a move which would add more than a city block to present exhibit space.**

***A part of the exhibit hall at the Oil Equipment and Engineering Exposition held in Houston last week. The Norvell-Wilder Supply Company's prize winning exhibit in the foreground. Photo by Merchant's Photo Service.***

BOTTOM HOLE

# Differential Regulators *in High Pressure* Gas Wells

H. G. OTIS,
*The Southern States Company*

DEEP high pressure wells have presented their problems for gas well operators as well as for the operators of oil wells. One of these problems is that of equipping the wells in such a manner that a flexible rate of withdrawal can be obtained without lowering the temperature of the expanded gas to the extent that there is danger of freezing either at the point of pressure regulation or at some point farther down the gathering line.

Recent experiments with a removable differential regulator placed near bottom in the tubing in a deep high pressure gas well indicate that the construction of equipment which will permit complete flexibility in rate of withdrawal and at the same time eliminate any freezing problem is entirely practicable. These experiments are interesting both because of the successful results obtained and because the principles employed, while old, are new so far as application to the control of high pressure gas wells is concerned.

Removable bottom hole chokes with beans of fixed diameter are in use in several of the Mid-Continent high pressure gas fields as the means of controlling the rate of well delivery, thus eliminating the freezing which would take place at surface controls were they used to control rate of flow. When choking on bottom in this manner, advantage is taken of the normally high temperature of the gas as it leaves the sand. Temperatures of 200°F. at 5500 feet are not unusual. While exact data covering the temperature losses at bottom hole chokes of this type is not available, no freezing at the chokes has taken place in any of the many installations. Heat exchange through the tubing is apparently rapid, since in one installation in which there was a pressure drop across the choke of from 2600 pounds to 450 pounds the temperature loss, measured at only a short distance above the choke, was only 50°F.

Bottom hole chokes alone, however, usually permit of very little flexibility in the rate of withdrawal from the tubing without pulling and re-running the choke with a bean of a new diameter. Due to critical flow, the rate of flow through the bean cannot be decreased by choking at the surface unless the pressure above the choke is at least one half of that beneath. As an example, if the working pressure beneath a choke is 2600 pounds, no reduction in the rate of flow through the choke can be effected until the pressure above the choke is built up to more than 1300 pounds—or to a pressure that might cause freezing at the surface.

Wells of the United Gas System in the Rodessa, Louisiana, gas field were selected as ideal for experimenting with equipment that would permit ready adjustment to any rate of feed without danger of freezing. These wells, equipped with two-inch tubing, have an average depth of 5600 feet, open flow potentials ranging from six million to 75 million, and a closed surface pressure of 2250 pounds. Rate of delivery is controlled by removable bottom hole chokes, but changing load conditions make it advisable, if possible, to alter this equipment to permit more ready varying of the rate of delivery from individual wells. The normal daily rate of delivery per well is, however, so low that when the wells are restricted with surface chokes alone, tubing head pressures rise to above 2000 pounds at a temperature of about 80°F. Expanding from this pressure and temperature to a normal line pressure of 400 pounds lowers the temperature of the gas to below zero, making operation dangerous and difficult if not altogether impossible. It was assumed that if the tubing delivery pressure could be lowered to 1300 or less pounds and the temperature of the gas raised to approximately 100°—or the average temperature when flow is through a bottom hole choke —the temperature of the gas when then lowered to line pressure would still be warm enough to preclude danger of freezing, and that a reasonable flexibility in rate of withdrawal would be available.

The equipment tried consists in effect of a weighted valve, or differential regulator, attached to an Otis Removable Bottom Hole Choke. This made it possible to readily lower the assembly under pressure on a Halliburton measuring line to the desired depth and to remove it in the same way without disturbing the tubing or well connections. The regulator was designed so that the pressure at its outlet would always be a predetermined amount less than that at its inlet.

The first installation was made at 4600 feet in the smallest well in the field—Smith 1—with a potential of about six million daily. The regulator was adjusted before running so that the pressure drop across it would always be 1000 pounds. Due to the difference in the weight of the gas inside and outside of the tubing, the closed surface pressure of the tubing was thus dropped from 2200 to 1300 pounds. As the surface choke was opened, this tubing pressure dropped until, with the valve wide open, delivery pressure equaled line pressure. Range of delivery was from zero up to that quantity which the bottom hole working pressure, less 1000 pounds, would deliver through the tubing against line pressure. Due to the small volume of this well, the maximum rate of delivery was found to be only 2400 M.C.F. daily. In the second installation, in a 50 million foot well and with the regulator adjusted to cut off only 800 pounds, the maximum rate of delivery against 475 pounds line pressure was found to be 7400 M.C.F. Delivery temperature in both cases was found to be approximately 100°—making reduction to line pressure entirely safe even when made at very low rates of delivery.

Construction of the regulator, shown in Figure I, is simple. It consists of valve (A) which is integral with valve stem (B), valve seat (C), coiled expanding spring (D) and adjustment nuts (E). The assembly is coupled, as shown, to the lower end of the Otis Removable Bottom Hole Choke. The tension on the spring (D) is adjusted by the nuts (E) so that the desired pressure differential per square inch is always maintained across the valve. If the effective area of the seat (C) is .3068 inches (diameter 5/8 inches), and it is desired to maintain a pressure drop of 1000 pounds across the valve, 306.8 pounds tension would be put in the spring. There is ample clearance in two-inch tubing for a spring

which will safely carry this tension. The lower face of the valve (A) is faced to retard any tendency towards cutting. The diameter of (A) and taper of the upper surface of (A) is such that were the valve stem for any reason to break, (A) would be blown up against the lower end of the mandrel (F) where it would effectively cut off all flow through the tubing until the assembly was removed and repaired.

Another construction is shown in Figure 2. In this construction the pressure differential across the valve (A) is partially balanced by bottom hole pressure, making it possible to use a much lighter spring than is possible with the construction described above. The valve (A) carries the small opening (B) which permits bottom hole pressure to build up in the pressure tight cylinder (G). The diameter of this cylinder is slightly less than that of the valve seat (C), so that the spring (D), instead of being adjusted to compensate for the desired pressure differential across the full area of (C), is adjusted to compensate for this differential across the area of C minus that of G. For example, if the area of (C) is .4418 square inches (diameter ¾-inch) and that of (G) is .4057 square inches (diameter 23/32), the bottom hole well pressure is 2600 pounds, and the desired pressure drop across the valve is 1400 pounds, the pressure exerted upwards against the lower face of (A) would be .4418 x 2600, or 1149 pounds, while that exerted downwards against the upper surfaces of (A) would be (.4057 x 2600) + (.4418 — .4057 x 1200) or 1098 pounds. The required tension of spring (D) then would be 1150 pounds less 1098 pounds, or 51 pounds. In the type of construction first described, the tension on the spring (D) for the valve opening of ¾-inch and the desired pressure drop of 1400 pounds would be 618 pounds. Threads H are for connecting a small sand screen if this is found necessary. This differential regulator, like the other, is screwed directly onto the bottom of a removable bottom hole choke.

The possible rate of delivery through equipment of this sort depends upon the depth of the well, the tubing diameter, the line pressure, the bottom hole working pressure, and the well's open flow capacity. The open flow capacity enters into consideration since it governs the rate at which the bottom hole working pressure will decline. Figure 3 shows the theoretical tubing capacity of a 5000-foot well with a closed surface pressure of 2300 pounds, and an open flow capacity of 50 million cubic feet daily against a line pressure of 300 pounds. The dotted curves show the capacity of two-inch, and 2½-inch and three-inch tubing at various tubing delivery pressures. The full curves show the capacities of these tubing diameters with bottom hole regulators, adjusted for a pressure reduction of 1120 pounds, installed. If it is assumed that freezing takes place when the delivery pressure exceeds 1300 pounds, then the lowest safe rate of delivery through two-inch tubing without the regulator will be 8600 M.C.F., through 2½-inch tubing 12,250 M.C.F., and through three-inch tubing 18,250 M.C.F. With the regulators installed, all three strings of tubing can be pinched back as desired to zero, but the wide open capacity is limited in two-inch tubing to 5250 M.C.F., in 2½-inch tubing to 8400 M.C.F., and in three-inch tubing to 11,250 M.C.F.

These capacities can be considerably increased—probably usually up to full casing capacity against line pressure—by the additional use of "mixing valve." This valve, which is shown in Figure 4, expands gas as needed from the well casing head into the riser from the well tubing, but is so placed and designed that the excess heat in the tubing gas is utilized to prevent freezing at the mixing valve and to warm the gas from the casing head as it expands into the gas from the tubing. The quantity of gas from the casing head which can be thus warmed by the gas from the tubing is dependent upon the excess temperature of the tubing gas and upon the temperature and the extent of the pressure drop at the mixing valve, or on the

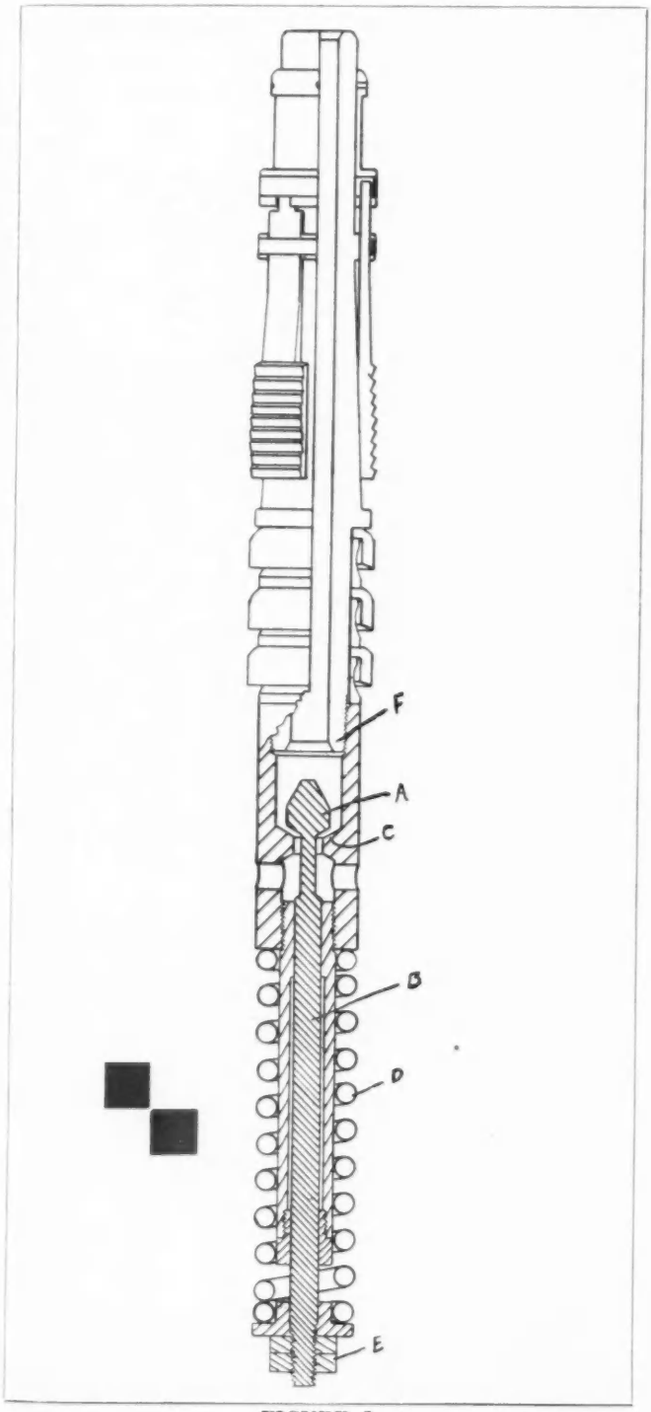



**FIGURE 1**

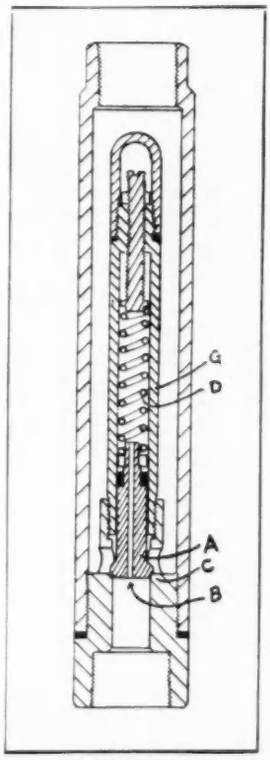



**FIGURE 2**

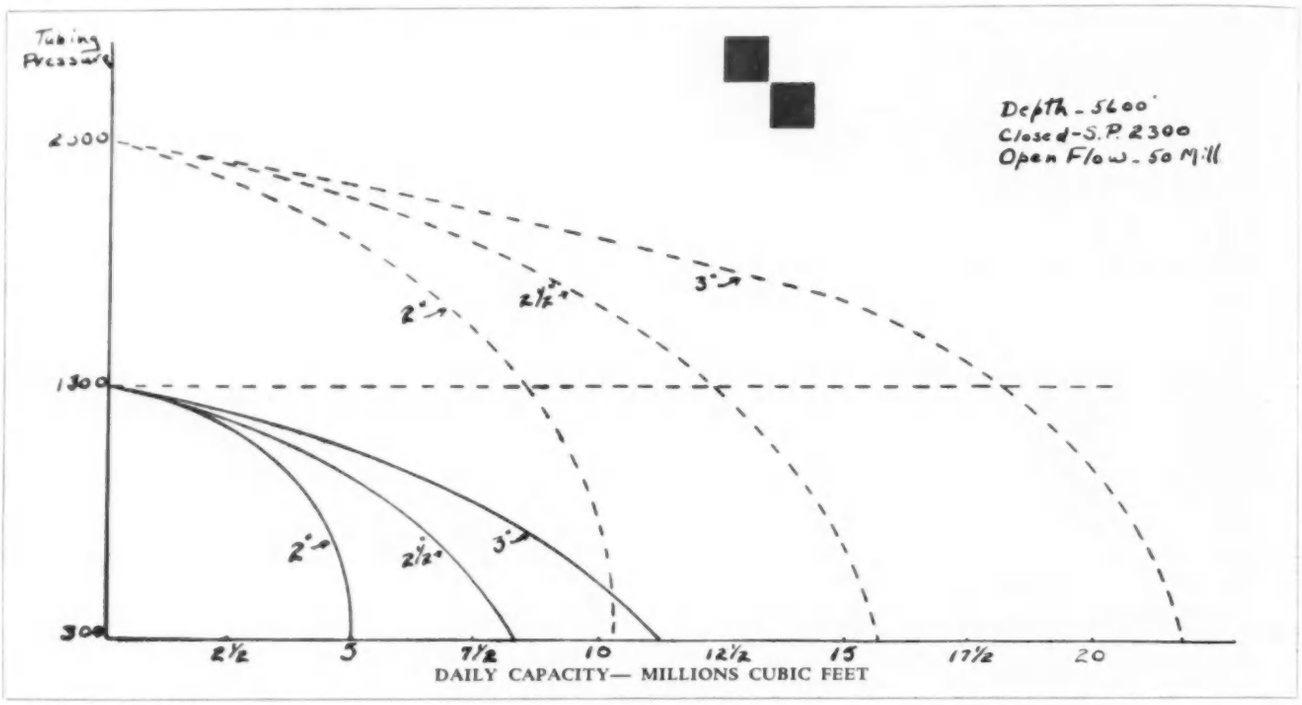



**FIGURE 3**

pressure drop from casing head pressure to line pressure. Here again, exact data is not yet available. Under conditions of wide open tubing delivery through a bottom hole choke at a temperature of 90°F, it has been found in tests at two wells that enough excess heat is available to adequately warm casing head withdrawals at a temperature of 80° and a pressure drop of from 2300 pounds to 300 pounds to 1½ times the volume of tubing gas. Or, each million cubic feet of gas from the tubing carried enough excess heat to warm 1½ million cubic feet from the casing. Applying this same proportion of 1 to 1½ to the wide open capacities of the bottom hole regulators as shown in Figure 3, it should follow that even under the above extreme conditions, the capacity of a mixing valve on the well for which the curve is prepared would be up to 7½ million in the case of two-inch tubing, 15 million in the case of 2½-inch tubing, and 23 million in the case of three-inch tubing. At these rates of withdrawal from the casing, the temperature of the gas from the casing will rise, the working pressure at the casing head will fall and the line pressure will rise, all of which will decrease the temperature loss per million cubic feet of casing head delivery. This in turn will mean that each million cubic feet of gas from the tubing—which also will be delivered at a higher temperature—will carry enough excess heat to warm more than 1½ times its volume of gas from the casing head, and that, normally, it will be possible to take any desired quantity from the casing. This would mean a complete range of delivery of from zero up to full casing capacity against line pressure.

To sum up briefly, the function of the bottom hole regulator will be to limit the delivery pressure of the tubing to one which will not cause freezing when reduced to line pressure even though the rate of feed is pinched back almost to nothing. While a reasonable range in rate of withdrawal will be available through the regulator, this range may be increased by the use of a "mixing valve," which expands gas as desired from the casing head into the flow of warm gas from the tubing. The excess heat in the tubing gas is used to warm the colder expanding gas from the casing head. When two-inch or larger tubing is used, it will probably normally be the case that the large possible combined withdrawals will result in a rise in the temperature of both the tubing and casing head deliveries, which together with the lowered well working pressures and the increased line pressures, should make it possible to feed up to full casing—or well-capacity. This will be accomplished without the use of surface heaters or long surface chokes, and without carrying dangerously high pressures on small surface connections. Since sub-surface temperature will be the sole source of heat, operation will not be effected by atmospheric changes as is the case when using surface heaters or chokes.

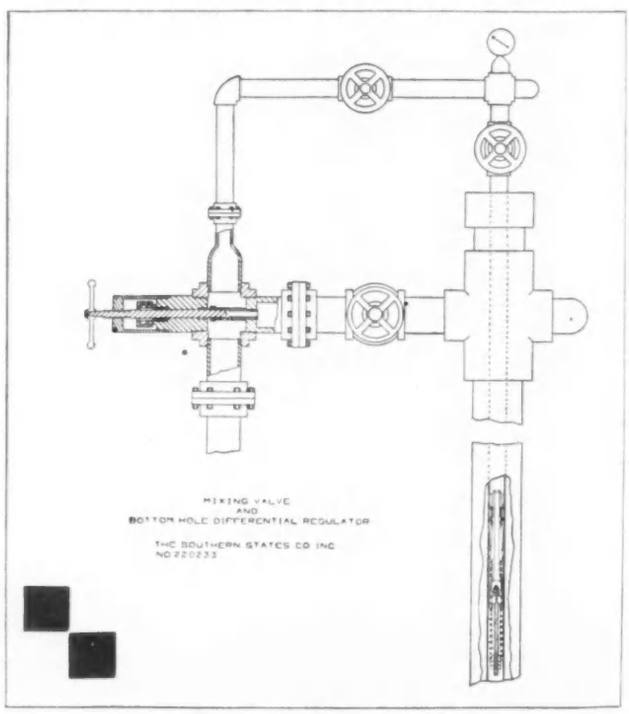



**FIGURE 4**

# Acid Treatment for Increasing Oil Production

R. B. NEWCOMBE
*Petroleum Geologist, Michigan Geological Survey, Lansing, Michigan*

**ACID treatment of wells to increase production of oil had its start in Michigan. It follows naturally that we should go to a member of the staff of the Michigan Geological Survey for a general discussion of this interesting subject.**

**Reports from time to time of results obtained by this treatment indicate that it has passed the experimental stage and is of economic importance. Introduction of the acid, it appears, has much the same effect as shooting with explosive, and in some instances does not include objectionable features some times assigned to the shot. On the other hand, there are formations where the acid is not so effective as shooting, and also where the objectionable features of the acid are greater than the shot. From this it follows that the efficiency of acid treatment is a matter of field conditions, and in many instances a matter of the individual well.**

**Further it is shown that handling of the acid treatment had best be left to crews who are familiar with the subject and under the direction of men who have studied it.**

**Mr. Newcomb's utterance of this article is with permission of the State Geologist and the Director of the Department of Conservation of the State of Michigan.**

A STEP in technical progress of far reaching importance to the oil and gas industry is the acid treatment of wells, as developed in Michigan. This procedure is not new in the industry, for experiments with acid in Ohio wells went on as far back as 1894, and in June, 1895, Dr. Herman Frasch of Cleveland, together with John W. Van Dyke of Lima, filed a patent which was issued in March, 1896. This early work with acid provided essentially for the use of hydrochloric acid in wells, the application of pressure to the acid reagent in the hole, the use of water or some other cheap neutral liquid on top of the acid to force the reagent farther into the rock, the confining of the acid to the producing portion of the hole, the use of a neutralizing liquid to take up the unspent acid and the cleaning out of the hole after treatment. However, these experiments did not attain widespread commercial application because of the damaging effects of raw acid to the pipe and to the hole itself.

The first stage of the development in Michigan was in 1929 when Dow Chemical Company of Midland, Michigan, sought to increase its brine supply from the Marshall sandstone by the use of hydrochloric acid, a product of its plant. It was known that this formation contained a certain amount of lime cementing material because, on several occasions, the tools after becoming stuck in the hole had been freed by the introduction of acid. The brine wells were treated in two ways: (1) by feeding a filtered acid solution inhibited against corrosion, together with brine for diluting purposes, back into the producing formation and, (2) by putting a charge of acid directly into the well with a head of brine or oil on top, together with the possible later application of mechanical pressure. The best results were obtained by the second method, and brine output was increased as much as 25 per cent, thus making it a profitable undertaking.

The second stage in the development of the acid treatment was when the oil and gas operators of the Mount Pleasant field and the Central Michigan area became interested. As a result, the engineers of The Pure Oil Company, working in conjunction with the chemical and engineering staff of Dow Chemical Company, perfected the workable process and technique which Dowell Inc. now uses. This experimentation in the Mount Pleasant field started in December, 1931. Somewhat prior to this time, late in 1930, Muskegon Oil Corporation in the Muskegon field experimented in some wells with acid manufactured by Grasselli Chemical Company, but used only small quantities of acid, and although a small increase in production resulted, the project was dropped after a few preliminary treatments. It was not until July 23, 1932, that the first well in the Muskegon field was successfully treated with a large charge of acid.

### Types of Acid

The acid manufactured by Dow Chemical Company and put out under the Dowell trade name has been most largely used in Michigan fields. The nature of this acid is given in the following excerpts from U. S. Patent 1,877,504:

"In carrying out our improved method we employ a mineral acid, preferably hydrochloric acid, inasmuch as the latter upon reacting with the calcareous rock forms water-soluble salts which remain in solution and are removed from the well with the spent acid. To the acid we add a small amount of a substance capable of inhibiting attack of the acid upon metal surfaces—e.g., of iron or steel copper, etc.— with which it comes in contact. As the inhibiting agent we prefer to use an arsenic compound soluble in the acid solution, examples of which are arsenic acid, $H_3AsO_4$, arsenic trioxide, $As_2O_3$, or a soluble arsenate or arsenite, such as the corresponding alkali metal salts. The amount of arsenic compound added may be varied, but we have found that from one to five per cent thereof, based upon the weight of the solution, will be satisfactory for the purpose. Other inhibitors which may be used are cyanides, organic nitrogen bases, such as aniline, phenyl-hydrazine, pyridine, quinoline, acridine, and derivatives thereof, organic sulfur compounds, such as mercaptans, as well as various by-products of industrial processes, such as sludge acid from oil refining and residues from acid sulfite paper manufacture, etc.

"The strength of the aqueous hydrochloric acid solution, in general best adapted to the purpose in hand, may be between about five per cent and about 20 per cent, and preferably should be between 10 and 15 per cent, although other concentrations may be used, if desired. With such strength of acid the corrosive action thereof upon metals, particularly iron or steel, can be largely or substantially inhibited by adding thereto a relatively small amount of an

arsenic compound or other inhibiting agent. Consequently, the acid can be introduced into the well through the pump tube, so that the latter need not be withdrawn prior to the treatment. It is sufficient merely to pull the pump rod and valves, and to pour the acid solution into the well through the tube. Due to the presence of the inhibitor there will be no substantial attack upon the pump tube, or upon the well casing if the charge of acid rises high enough in the well to contact with the casing.

. . . . . .

"In the practical use of our method in the Central Michigan oil field, where the oil is derived from a calcareous rock formation, we have successfully used hydrochloric acid solutions of 10 and 15 per cent strength to which was added a small amount—e.g., one to five per cent—of an arsenic compound. For example, to 4500 pounds of a 15 per cent hydrochloric acid solution were added two gallons of arsenic acid solution containing 21 pounds of arsenic calculated as $As_2O_3$."

Dowell-X is best adapted to ordinary limestone horizons, but a more powerful product known as Dowell-XX has been put into wells where the producing rock is hard limestone or dolomite. The Dowell acid is shipped for long distances in tank car lots, but usually it is stored in wooden tanks. The trucks for hauling the acid in the field were first of 500 gallons capacity, but they are now equipped to carry 1000 gallons. The nature of these trucks, with their accessory equipment, is shown in the accompanying photograph of a well being treated. When shipped, the acid is already prepared with the inhibitor for treating the wells.

The arsenic inhibitor used is supposed to be about 96 per cent efficient, but some independent chemists have found trade samples approximately 93 per cent efficient. The acid is between four and seven normal. The first Dowell acid used in the Muskegon field was of about 10 per cent concentration, but buyers at Mount Pleasant have determined up to 17 per cent HCl in this reagent. Apparently, the effectiveness of inhibitors is somewhat decreased when the concentration exceeds 12 per cent, but experiments with more concentrated acid are now under way.

Many wells in the Muskegon field were treated with the Du Clean-2A, a product of the Grasselli Chemical Company (DuPont). This acid was shipped to Muskegon in about 30 per cent concentration and diluted about one half to approximately 15 per cent HCl before use. The inhibitor was 95-97 per cent effective.

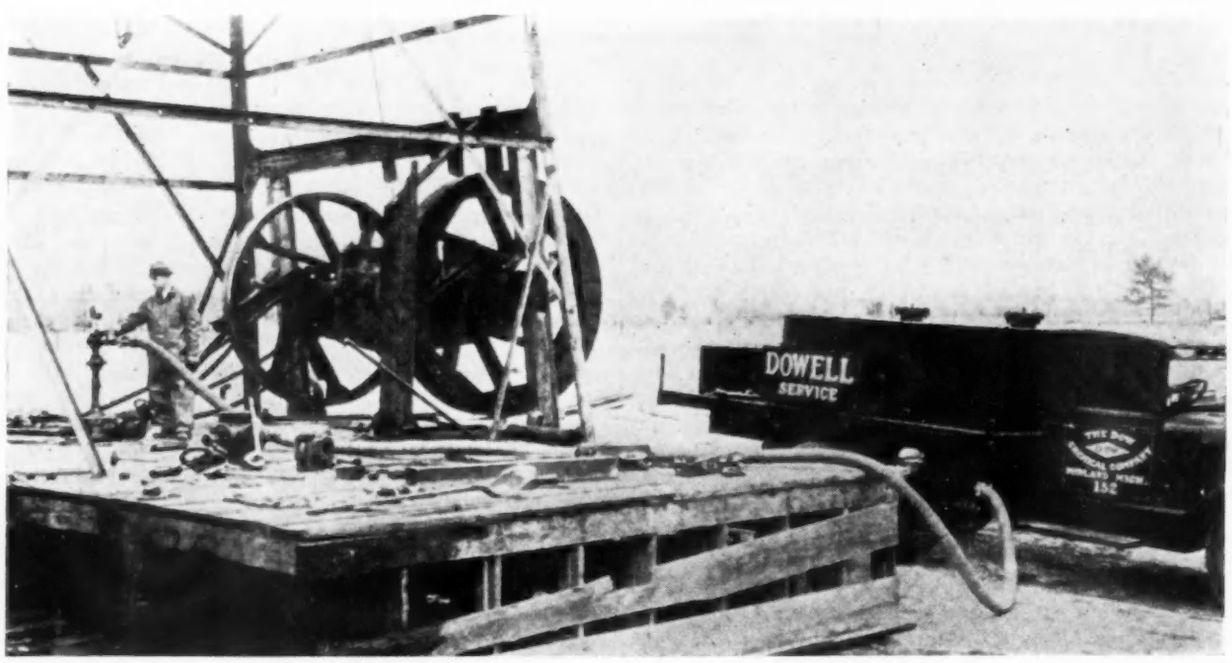
The Rademaker Chemical Company of Manistee, Michigan, put out an acid for the treatment of wells under the trade name "Oilmaker." This acid was used mostly in the Muskegon field. The business thus built up has recently been turned over to Pennsylvania Salt Company.

A few operators risked the use of raw hydrochloric acid (7 normal—18° Be.) with simply water dilution, but in several cases disastrous results to casing, tubing, working barrel, and rods followed. Blends of hydrochloric acid with other acids (sulfuric?) have been tried, but the degree of success is not known. A limiting factor in the use of mixed acids is the requirement that products from the reaction be largely soluble.

### Accessory Chemicals

The composition and exact quantity of inhibitors used are necessarily trade secrets, but these inhibitors consist for the most part of arsenic compounds and analyses are reported to show the presence of arsenous oxide and nickel chloride. One chemist recommended the use of dibasic lead arsenate. Experimentors have tried the inhibitors in ordinary "pickling" acids (used in parkerizing and bonderizing for rust proof purposes), but these seem unsatisfactory because they possess properties which prohibit the metal from being long in contact with the acid without hydrogen embrittlement setting in. It has been demonstrated by comparative tests that whereas ordinary pipe shows a loss of .210 pounds per square foot per day from contact with raw acid (HCl), the loss with inhibited acid used in wells is only .001 pounds per square foot per day.

In many cases paraffin has prevented the acid from doing




***Injection of acid into well***

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its work with greatest efficiency, and several types of paraffin solvents have been perfected to clean the hole before the acid is introduced. A regassing service for livening a dead well is also in vogue and can be furnished in connection with acid treatment.

Chemicals are also being used for directing, controlling, or retarding the action of the acid reagent in the hole. These include a "blanket" put in ahead of the acid in the bottom of the well to prevent the acid from reacting downward and to confine its action to the productive zones in the oil and gas formation; a brine seal or plugging material which forms some kind of a gel with salt water and prevents the preferential reaction of the acid where salt water is present; and a surface tension breaker which permits calcium chloride ($CaCl_2$) formed in the reaction to come out of the rock where there is not sufficient gas present to help get rid of this continually formed soluble salt.

### Technique

The technique of treating oil and gas wells with acid varies from well to well and like many other phases of petroleum engineering, each well is a particular problem in itself. In general, it consists of introducing enough oil to fill up over the casing seat, of putting in the charge of acid on top this bottom oil, and of finishing with a load of oil on top the acid. Further mechanical pressure may be applied at the well head with a pressure pump to force the acid back into the porous lime "pay," but it is generally unnecessary to keep the well under pressure while the acid is being introduced. The oil and acid practically siphons into the hole.

If the well is not making enough oil to fill up over the casing seat, about 60 barrels of oil are put in the hole. The charge of acid usually consists of 500 to 1000 gallons, but it may be less. Many wells in the Mount Pleasant field are treated with the maximum amount. From 80 to 90 barrels of oil are placed on top the acid, and the well is allowed to stand for 24 to 48 hours depending upon local conditions. A test for unspent acid is made with an indicator or possibly by a more detailed chemical analysis. The well is then cleaned out, and a flowing or pumping test is carried on. Some wells are swabbed or bailed after treatment, but many of them at Muskegon are put to pumping immediately. Wells in old fields may possibly have to be primed with oil in order that they may be pumped satisfactorily. Sometimes, in new fields, additional treatments are necessary before the best results are obtained. Usually, if a well is not improved and made a satisfactory commercial producer in three treatments, it is plugged and abandoned. Maximum results are generally obtained in the first two treatments, and only in exceptional cases are additional treatments beneficial.

At first, in the experimental stages of the process, small charges of three to four barrels were put into the wells successively, but now it is more common to put in the entire charge of 500 to 1000 gallons. In some of the Muskegon field wells, the tubing is pulled before the treating, but generally the acid is pumped in through the tubing or simply allowed to run into the hole. As a common thing, when a well is flowing, the acid is introduced through tubing, then the hole is nearly filled with oil, and pressure fittings are placed on the well head. Since the acid weighs about 10 pounds to the gallon, there is no difficulty in keeping it on bottom, but application of sustained pressure prevents gas from interrupting the chemical reaction of the acid with the lime formation and carrying it away from the pore spaces of the "pay" horizons. Frequently, a slight vacuum at the well head is created by the reaction at the bottom of the hole and the lowering of the fluid level due to oil forcing its way back into the newly opened pores. This condition of vacuum caused by increased porosity and consequent drop in fluid level is observed in many wells on removing the pressure fittings.

However, pressure conditions at the top of the hole are not always the same due to a number of physical variables which the chemical reaction introduces. Aside from the drop of fluid head, there are to be considered the changes due to the heat of reaction and the carbon dioxide given off. Sometimes a pressure is built up from the generation of carbon dioxide unless some provision is made for its release. As an example of the wide variation in pressures, one company in treating 11 wells found the maximum casinghead pressure to vary from 20 to 450 pounds, while the maximum tubing pressure varied from one to 250 pounds. Although these differences were obviously not all due to the acid reaction, they clearly indicate the variability of conditions.

| | Maximum Casing Head Pressure (Pounds per sq. in.) | Maximum Tubing Pressure (Pounds per sq. in.) |
|---|---|---|
| 1. | 350 | 70 |
| 2. | 310 | 60 |
| 3. | 370 | 250 |
| 4. | 370 | 70 |
| 5. | 450 | 100 |
| 6. | 350 | 250 |
| 7. | 420 | 225 |
| 8. | 310 | 5 |
| 9. | 160 | 1 |
| 10. | 500 | 200 |
| 11. | 20 | 28 |

Oil company engineers have calculated that if the acid reaction took place so as to form a single cavity a normal charge of acid (1000 gallons) would dissolve out approximately nine cubic feet of rock. By experiment with a known weight of Dundee limestone, it has been found by laboratory test that 27.5 cc. of concentrated HCl (Conc. 35-37%—Sp. gr. 1.18-1.19) will react with 15 grams of limestone sample. This reduces to a reacting capacity of 98-104 gallons per cubic foot of limestone, which compares very closely with estimates of engineers in the field.

Treatments with paraffin solvents in connection with the use of acid have been affected in two ways: (1) by putting in a "hot shot" (chemical means of heating the solvent) with the solvent ahead of the acid and pumping out the loosened paraffin before introducing the acid and, (2) by putting in the acid first and treating with a paraffin solvent afterward. Each method may give rise to a certain amount of difficulty, the first by the dissolved paraffin being forced back into the porous "pay," and the second by the paraffin being shoved back into the hole. Therefore, the handling of paraffin problems requires close attention and supervision.

The "blanket," a substance comparatively inert to the reaction of acid, is sometimes used to direct the acid into the actual "pay" itself and is put in after the first oil and before the acid goes down. This prevents the acid from going to the bottom of the hole so that it may follow the path of least resistance from the sides of the hole into the porous productive horizons. It also prevents the ineffective use of acid put into a well and the downward action which might open the way to bottom or edgewater.

The "brine seal" or "chemical plug," as developed in Michigan, can be used to correct or counteract adverse water conditions when they arise. It consists of an oil

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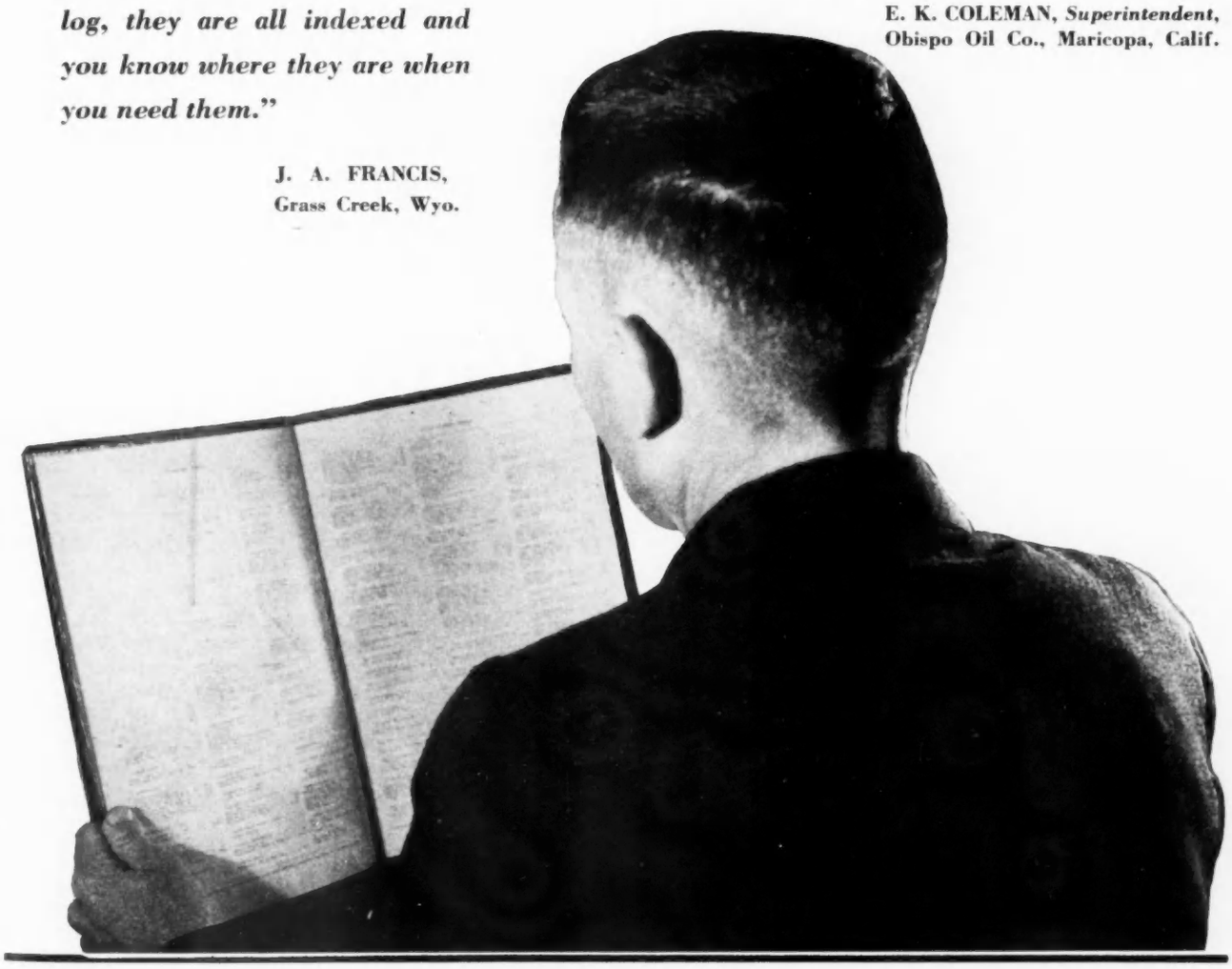

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soluble chemical which is insoluble in brine and precipitates so as to shut off brine filled openings upon coming in contact with salt water. The brine openings offer less resistance to the ingress of acid than oil openings because of differences in viscosity and surface tension, and, accordingly, the acid introduced will follow the brine more easily than the oil. If the brine and the oil are in separate cavities or openings, the seal in most cases stops the inflow of brine, but if the brine and oil occur together in the same openings the ratio of oil to brine recovered is somewhat increased.

The acid treatment has been adapted to various types of wells producing from lime rocks, and a considerable variation in technique has been necessary. Aside from local well conditions, this technique has depended on whether the well under treatment was flowing or pumping and whether it was new or old.

### Results

The results from treating oil wells in Michigan with acid have not been uniform and seem to have been more satisfactory in new fields than in old fields where production is settled, gas pressure is low, and water is more prevalent. The all consuming question as to whether the acid treatment will affect the total production recovery from a field has not yet been completely answered. It is positive, however, that in most cases the costs of treating have paid out by the stimulated output and many wells that would have otherwise been dry holes have been made into commercial producers.

The acid, if properly introduced, opens the pores and by connecting isolated openings creates greater perviousness or effective porosity. When a well strikes a tight, nonporous "pay" horizon, acid will eat its way for some distances through these dense beds and possibly connect the hole with more porous beds close by. It often cuts paraffin clogging on the walls of the "pay," in the pores of the "pay" near the hole, or in the pipe, and this is especially true if the paraffin is intimately mixed with the lime sludge. Sometimes the acid can open the way to the "pay" when the face of the "sand" has been sealed by shooting.

Wells that have been successfully treated show not only more oil, but also more gas. Many wells on the beam in the Mount Pleasant field have commenced to flow, and even in the Muskegon field, where most of the wells were approximately three years old, the quantity of gas was materially increased. In Michigan, wells in limestone "pays" have been successfully treated in the Saginaw, Muskegon, and Mount Pleasant fields.

At Mount Pleasant, sooner or later, nearly every well is treated at least once. A compilation of the statistics on 100 consecutive wells treated is as follows:

**Statistics on 100 Consecutive Wells Treated (Compiled by Dowell, Inc.)**

| No. of Wells | Average before treating | Average gain | Total gain barrels | Per cent of increase |
|---|---|---|---|---|
| 30 | 2.33 | 38.05 | 1,141 | 1,631.75 |
| 40 | 13.90 | 37.00 | 1,804 | 266.18 |
| 22 | 47.40 | 149.30 | 3,255 | 314.97 |
| 8 | 139.81 | 355.80 | 2,840 | 254.48 |
| 100 (total) | 26.41 (av.) | 90.41 (av.) | 9,040 (total) | 342.29 (av. %) |

These figures show that on the average the percentage of increase is greatest in the smaller wells. Only a few wells in the Central Michigan area have failed to respond to treatment.

The story of acid treating in the Muskegon field is somewhat less encouraging, and activity along this line is now more or less at a standstill. Most of the wells have already been treated and those which have not are wells which produce too much water or would otherwise not be considered worth treating. Up to March 15, 1933, 158 wells had been treated in the Muskegon field. The oil production at Muskegon comes from three horizons: the Upper Traverse, the Lower Traverse, and the "Dundee," and of the treated wells, 121 were in the "Dundee," 25 in the Upper Traverse, and 12 in the Lower Traverse. The kinds of acids used on these wells were as follows: Du Clean 2A on 62 wells, Dowell acid on 54 wells, "Oilmaker" on 27 wells, and straight hydrochloric acid on 15 wells; but all of the recent treatments have been with Dowell and Du Clean acids. The largest operator in the field found that as good results were obtained with 500 gallons of acid as with 800, the most used in any one of its wells.

The approximate average production increases up to the first 90 days for Dundee wells treated are shown graphically in Figure 1. The Upper Traverse "pays" seemed to respond to treatment about as well as the "Dundee." The best initial increases were obtained in the "Dundee," but the results were relatively of short duration when compared to the results in the Upper Traverse. In this formation, the percentage of increase was not quite so great as in the "Dundee," but the favorable results lasted from two to three times as long, and in a few instances much longer. The Lower Traverse "pays" responded very feebly to acid treatment and only in two wells was an appreciable increase in production maintained.

Successful utilization of acid for treating wells has expanded into several other fields, notable among which are Zwolle, Louisiana (chalk); Breckenridge, North Central Texas (end dark lime); the Beebee and St. Louis fields, Oklahoma (Viola, Hunton, and Crystalline limes); the Potwin field, Butler County, Kansas (Mississippi lime); and Menifee County, east central Kentucky (corniferous lime). Experimenting, which has gone on in many pools of the country, has been done near Bowling Green, Kentucky, and in the old Trenton "rock" field in the vicinity of North Baltimore about eight miles northwest of Findlay, Ohio. According to some reports, the extremely dolomitic character of the Trenton "pay," the predominance of crevice conditions, and the high percentage of salt water are somewhat hampering the success of these experiments in Northwestern Ohio. Others in this district believe, however, that the process has not been sufficiently tried to definitely determine its workability.

### Difficulties in the Use of Acid

Many of the early difficulties in the use of acid have been eliminated by the adoption of inhibitors, but some of them still remain.

One of these is the speed and completeness with which the residues from reaction settle out. Despite the ready solubility of the resulting calcium chloride ($CaCl_2$) and the filtering of much of the acid, some residues are bound to settle out because of supersaturated solution forming and impurities in the lime rock reacting with the acid. Some operators who dilute their own acid in the field maintain that this enables them to make allowances for treating wells showing varying amounts of salt water and also to keep in solution mineral salts which would be derived by the reaction of the acid with the limestone.

Use of raw acid was disastrous to some of the wells in the Muskegon field. In one well, where 500 gallons of acid was poured down between the tubing and casing, the tubing and rods were badly damaged. The balls and seats and

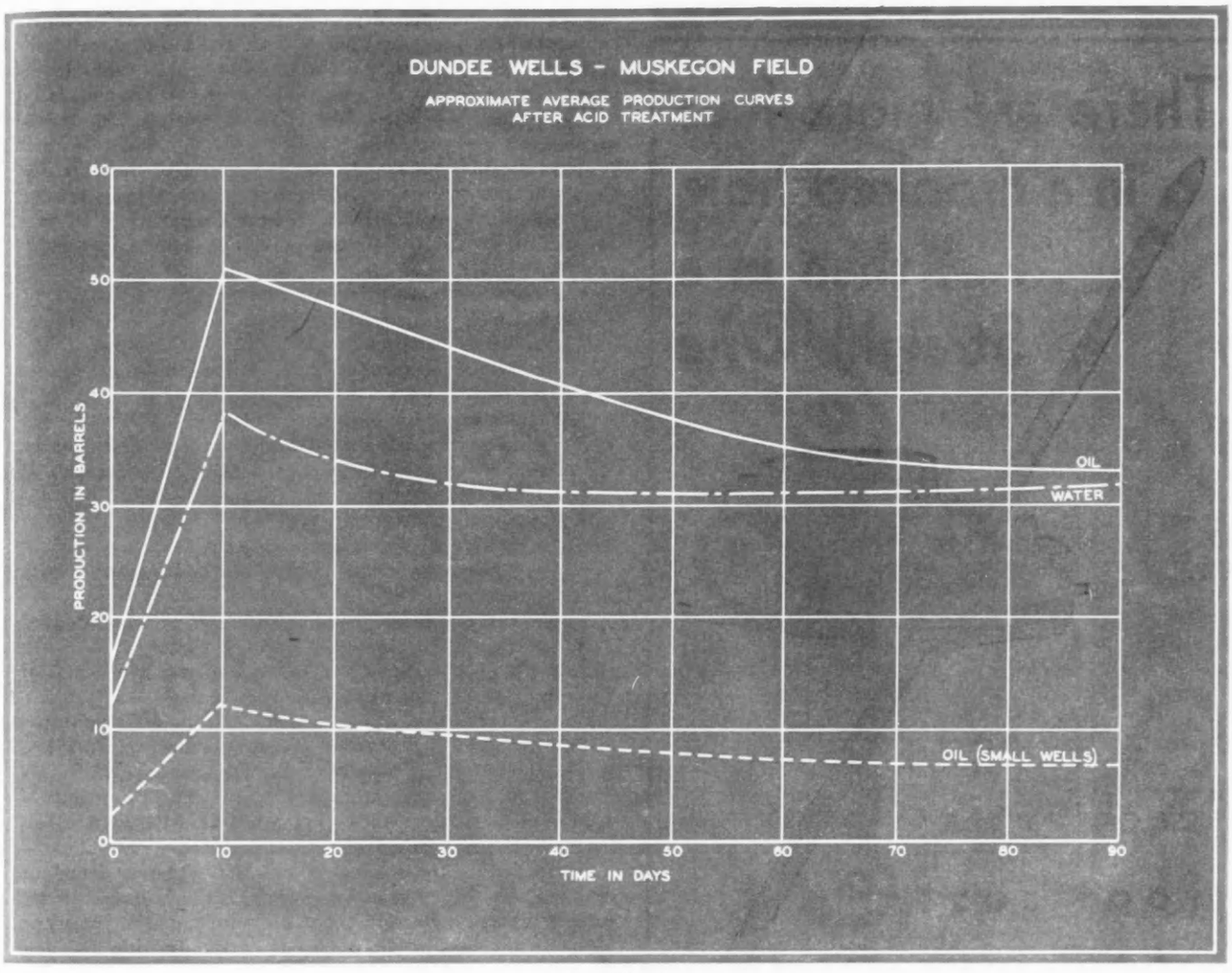


**FIGURE 1**

working barrel were attacked, and 300 feet of the tubing were eaten through in a number of places. Of particular interest was the way the threads were attacked, and it was apparent that the acid had gone to the breaks or joints in the pipe which the oil in the hole did not completely protect. The unfortunate thing about the destructive action of raw acid on metal was that it could not be observed immediately after the wells were treated. The time necessary was from three days to three months, but more generally it was the longer period.

Even with inhibited acid, it seems that some difficulty might arise from the unspent reagent being left in the hole, either by surging or a similar cause. This unspent acid would not be revealed by indicator tests. However, well conditions which might be attributed to this cause have not been reported up to this time.

The average curves of the Muskegon production after treatment suggest that the water increased materially, as the oil declined. This was not true for all wells, but it was true that a material increase in the amount of salt water kept pace with the initial after treatment increase in the amount of oil. Several operators at Muskegon found that after the first beneficial effects of the acid treatment were over, some of the wells declined below their capacity prior to treatment and became more difficult to pump. In many wells making both oil and water, however, the amount of water increased for a week or 10 days and then fell off, the explanation being that the brine filled cavities opened by the acid must have drained out before the ratio of oil to brine increased.

Another difficulty is the regulation of the speed of the reaction of the acid. The action of 20° Be. acid is too rapid in many cases and only makes a large hole without appreciable penetration into the rock. In this regard, the use of pressure must be adjusted to conditions and closely regulated. On treating for the first time, it is desirable in certain types of formations, because of paraffin in the bottom of the hole, that the acid not be forced too far into the rock. On second treatments, it is more desirable to use a relatively high pressure with a slow acting acid solution that will penetrate before the reaction takes place.

In some wells, there is difficulty in protecting the casing seat. This is usually handled in two ways, by putting in enough oil to reach up over the casing seat or by putting a packer on the tubing and setting it tight enough below the casing seat to prevent by-passing.

### Need for Additional Research

In developing the process of acid treating, experimentation has led to a much better understanding of the chemical and physical aspects of the problem, than was possible when it was first conceived. However, many of the geological factors are still unknown, and the complete answers to why some wells respond and others do not and why some producing lime formations are not amenable to treatment still remain largely matters of conjecture. For instance, Lower Traverse wells at Muskegon do not respond to the ordinary methods of introducing acid, and some theorize that this is due to the high silica content of the "pay" rock, while others claim that the formation already

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has its maximum porosity. Possibly, neither one of these explanations are correct, but instead the close association of the Lower Traverse "pay" with sulfate rocks (anhydrite) may tend to cause the throwing down of an unusually heavy residue. On the other hand, a multiple hypothesis may explain the problem.

From a geological standpoint, the nature of the porosity should be one of the first methods of approach in reviewing local conditions. W. V. Howard of the University of Illinois has very thoroughly classified porous limestone reservoirs as follows:

"1. Limestones with primary porosity.
   a. Chalk
   b. Oolitic limestone
   c. Primary crystalline dolomite and limestone
   d. Coral reefs.

"2. Limestones with secondary porosity.
   a. Limestone associated with former erosion surfaces
   b. Limestone with porosity developed as a result of mineralogical changes.

"3. Fractured limestones.
   a. Strongly jointed limestone
   b. Limestone fractured as a result of crustal movement
   c. Limestone fractured as a result of mineralogical changes."

From this classification can be readily seen the origin of different types of porosity.

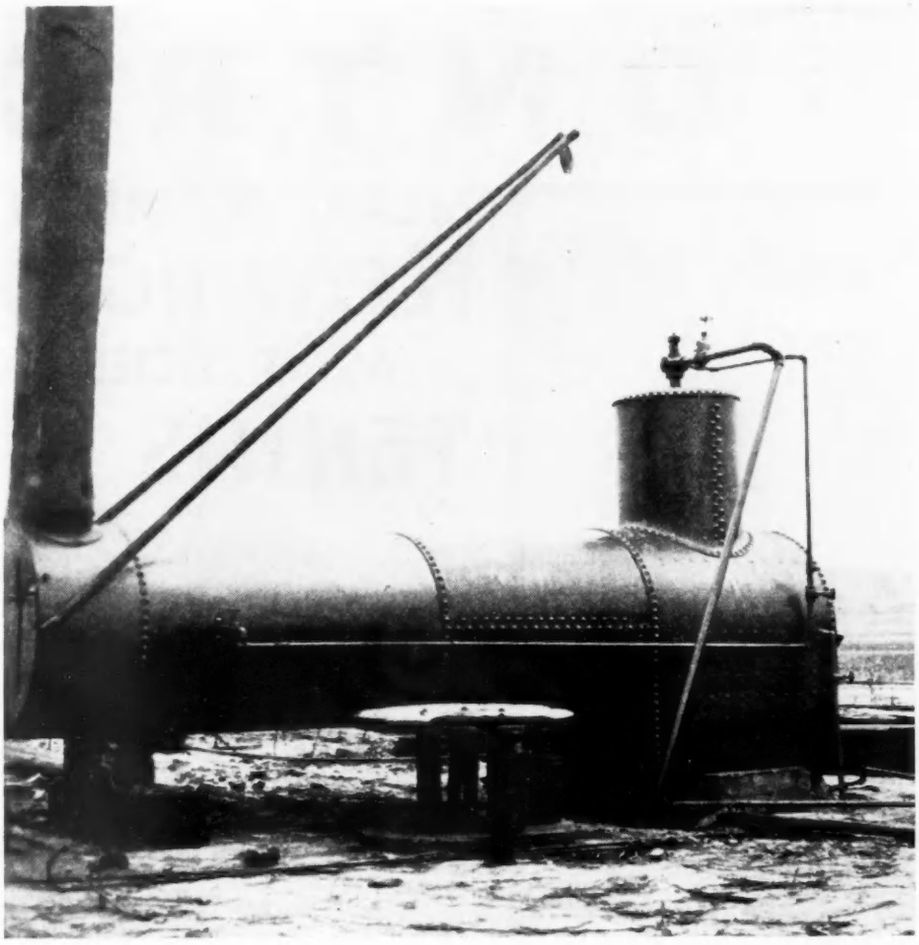
The distances that acid may penetrate in different types of porous lime rocks under different concentrations and varying amounts of pressure and temperature are still to be determined experimentally. We know that offsetting or even remote treated wells may interfere with each other, but just how or how much we do not know.

Just what are the sealing effects of the residue from the reaction, and how much acid is left in the hole by the resultant calcium chloride ($CaCl_2$) checking the reaction? What is the balance between capillarity drawing the acid into the pores, crevices, and joint planes, and the effects of the reaction opening the pores which would tend to break down the rate of capillary phenomena? How does the differential or preferential reaction of the acid take place in attacking crystalline calcite veins and stringers in advance of the more massive rock? What is the relation between the action of the acid and the particular type of limestone porosity which exists? How does the ratio or balance between relative proportions of limestone to dolomite determine the types and strength of acid to use? What are the complex chemical reactions that take place aside from the simple ones? How does the heat produced by the reaction vary in different types of porous lime formations and in different regions? What is the effect of treatment on total recovery of oil and/or gas? Is there any "flushing" effect caused by the acid? How does the opening up of confined pores upset the equilibrium of oil-gas mixtures existing in these pores, and what changes in the properties of crude take place in treated wells? What effect does the treatment have on oil that is absorbed in the limestone?

These and many others are questions that offer real opportunity for thorough research toward more efficiently increasing the output of oil and gas from limestone "pay" horizons by controlled acid treating.


### Acknowledgments

In preparing this review, the recent articles by Sherman W. Putnam, secretary of Dowell, Inc., and sales literature of that company have been freely drawn on. C. H. Riggs, W. L. Daoust, and F. H. Loveday of the Michigan Geological Survey staff, and numerous company field men added much of the detailed information.



*This Arrangement Simplifies Handling*

# Stacks on Field Boilers

PLENTY of grief has been experienced by toolies, drillers, roustabouts and others when raising stacks to the drilling or cleaning out boilers when they are moved from one location to another. Usually a two-inch gin pole is set near the stack end of the boiler with a flange screwed on the upper end to which the guy wires and block are fastened. The lower end is ordinarily placed upon a piece of derrick sill, a piece of two-by-twelve or what have you, to prevent the end from sinking into the ground as the stack is picked up and placed in position. Often it requires as much effort to raise the gin pole as it does the stack. Even with all hands on duty, it is sometimes difficult to place the stack on the bonnet and finish raising it into position.

But down south of Sapulpa, in the old Kiefer district, one drilling contractor has solved the gin pole problem by making one which is a part of the boiler and may be moved with it when changing the equipment from one location to another. He drilled a couple of holes equi-distant from the top to the bottom under the bonnet and near the edge of the plates by the smoke box door. Three-quarter drills were used so that bolts of sufficient strength could be inserted to stand the strain. Then, two joints of two-inch pipe were flattened at both ends with a sledge after being heated to working temperature. Three-quarter inch holes were drilled in both ends of the two-inch pipe, so that one end of both pieces could be bolted to the boiler. The joints of pipe were bent a little so that when a short bolt was placed through the holes in the other ends, they were brought together close enough that the line holding the block attached to this bolt would not slip and slide around.

As the connection between the ends of the pipe gin pole and the boiler acted as a hinge, the assembled unit may be swung from any point near the dome of the boiler over the bonnet to the ground. Connecting the stack to the lower set of blocks, and guying the gin pole to the "nigger head" on the steam dome, it is a simple matter to pick up the stack and place it in position to set down on the bonnet. After the stack has been erected and guyed in place, the connections between the blocks and the gin pole may be left in place, or removed to suit the convenience of the drillers or clean out gang.

When ready to move the boiler, it is also a simple matter to remove the stack, the gin pole swung back to the connections on the dome and secured in place. The boiler may be moved with the gin pole in position, and when ready to set up again, the gin pole is ready for the crew to lift the stack without doing extra work setting another.

# CONTROL

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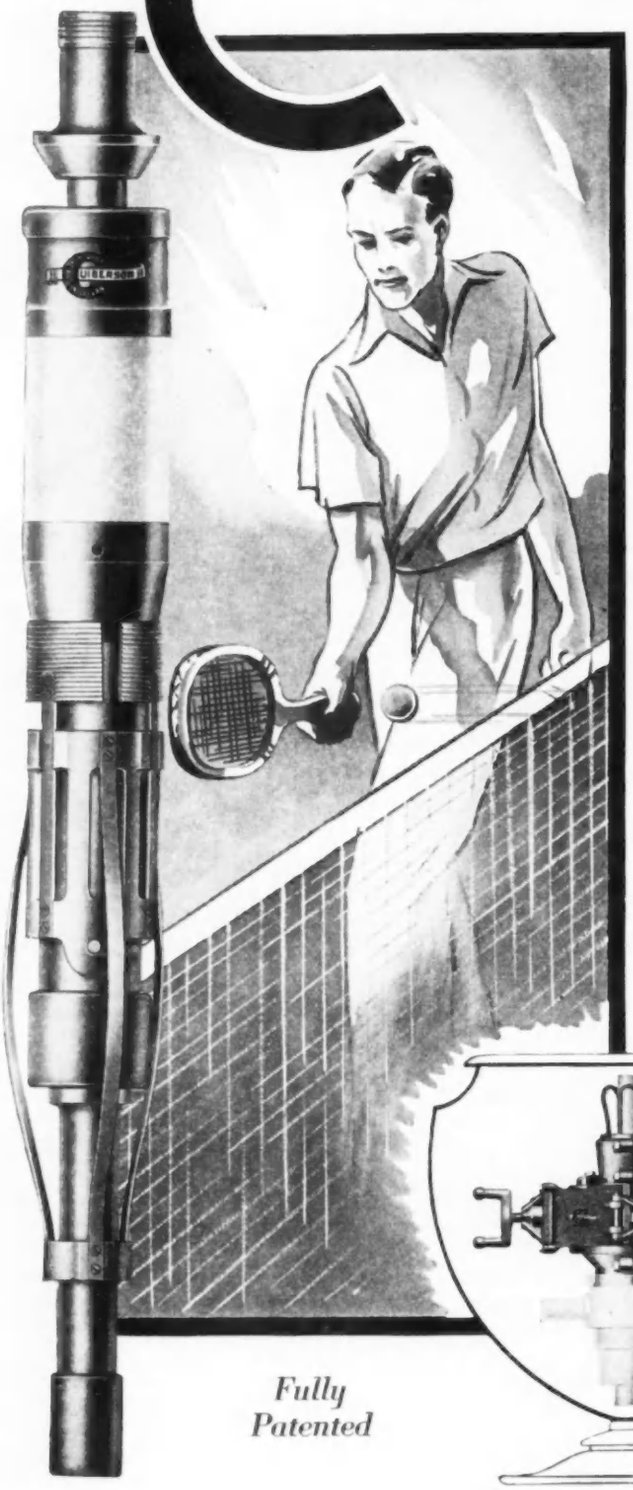

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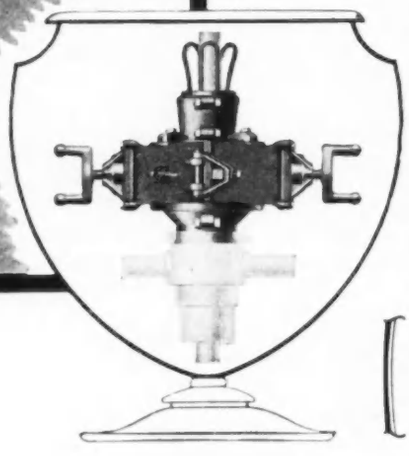

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# GUIBERSON

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# MARKETS — STATISTICS

***"Street Talk" has that the price is going up. At any rate feeling is better. Output shows sharp decline over week.***

## Price Strenghtens As Better Feeling Prevails

DURING the past week further substantiation was forthcoming that the crude oil price cuts placed in effect throughout the areas east of the Rocky Mountains late in April and early in May were so drastic as to make quotations inadequate in some instances for attracting to the market sufficient crude to meet the requirements of purchasers.

Among the areas where buyers have lately raised their bids above former levels are the Eastern States, in which prices were increased 10 cents per barrel in most instances and 13 cents in one district. The higher prices were initiated May 22 with a new price schedule issued by The Joseph Seep Purchasing Agency of the South Penn Oil Company, and they fixed the market quotations mid-way between the low levels of May 9, 1933, and the posting of January 21, 1933.

In the new schedule prices are as follows: Pennsylvania grade oil in South West Pennsylvania Pipe Line, $1.07, and the same grade oil in Eureka Pipe Line Company $1.02, both new quotations representing 10-cent increases; and same grade oil in Buckeye Pipe Line Company 90 cents, up 13 cents.

Tide-Water Pipe Company, Limited, quotations at the same time were as follows: Pennsylvania grade oil in New York Transit Company $1.37 and Bradford district oil in National Transit Company $1.37, a 10-cent increase in each case.

East Texas crude, which was cut from 50 cents to 10 cents a barrel April 24, was the first to demonstrate that price-cutting had been carried to an extreme, the official posting having been boosted to 25 cents by all purchasers early in May; and even that level being characterized by strength, with spot crude sales being made lately at prices only slightly below the official posting.

Unwillingness of producers to sell their crude at the low prices established in April and early in May has also been exhibited in various other sections of the Mid-Continent area, premiums of 5 and 10 cents above the 25-cent official posting having been paid in the past two weeks by purchasers in North Texas and in Oklahoma in order to fulfill requirements; while the 20-cent posting for West Texas crude has resulted in large quantities of oil being diverted to storage to await better prices.

## Output Takes Sharp Decline Over Week

UNDER the influence of a sharp drop in Oklahoma's rate of production, crude oil output of the United States declined 80,450 barrels during the week ending May 27 from the level of the previous week, the new average being 2,618,020 barrels daily.

The above figures do not take into account excesses above the recorded production in the East Texas field, no definite data on such excesses being available; and since the unauthorized production has been to the extent of about 185,000 barrels daily during the past two weeks, according to estimates of various companies interested in the field, such a figure must be added in each instance to indicate the nation's actual output. Thus for the week of May 27 it is indicated that the country actually averaged around 2,800,000 barrels production daily, as compared with about 2,885,000 barrels per day the previous week.

While the East Texas field is still yielding around 1,000,000 barrels daily as compared with an official allowable of slightly more than 800,000 barrels daily, a considerable portion of that excess is accounted for by the fact that various producers, independent and major, have lately obtained permission from the railroad commission to produce "back allowable" to a total extent of about 800,000 barrels. On the other hand there has been some curbing of output through decreased movement of oil out of the area in tank cars, a recent report showing only about 600 cars moving out daily as compared with more than 1000 cars daily for a while about two weeks ago.

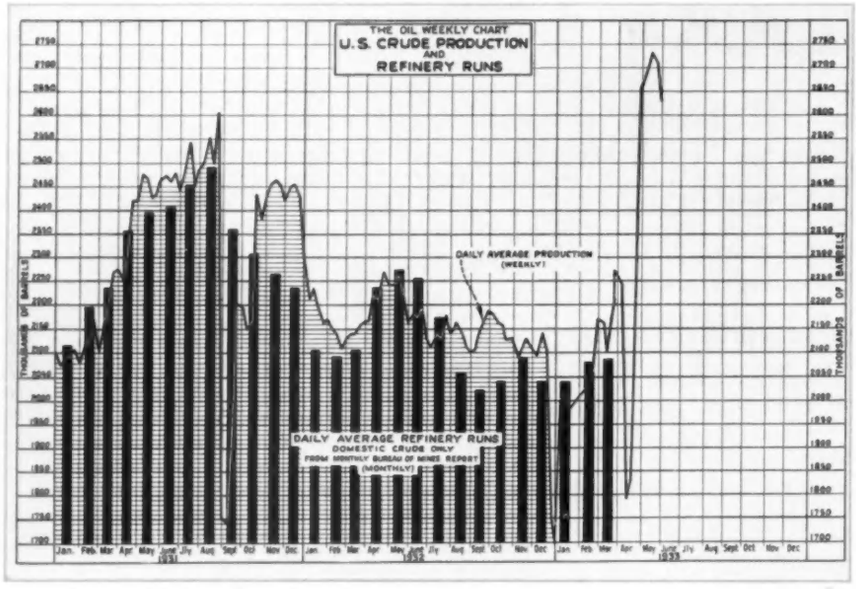
Including excess above official allowable in East Texas, that state continued during the week of May 27 to produce over 1,500,000 barrels daily; and exclusive of such excess the output averaged 1,369,075 barrels per day. The latter figure is about 6000 barrels higher than the corresponding average for the previous week. The Texas gain was limited altogether to the Gulf Coast region, other sections of the state remaining practically unchanged from the production levels of the week of May 20. The Texas Gulf Coast increase was accounted for by the booming Conroe field, which averaged about 82,000 barrels daily for the new week as compared with 75,000 barrels per day the preceding week. Conroe's allowable as ordered by the railroad commission is only 65,000 barrels daily.

Oklahoma production dropped 78,000 barrels, averaging 383,145 barrels per day during the week ending May 27, with Oklahoma City itself accounting for 65,000 barrels of the decline, with a new daily average of 95,395 barrels; while the Seminole district's 124,800-barrel new daily average represented a 5000-barrel drop.

**THE OIL WEEKLY**
**Estimated Average Daily Production of Crude Oil, in Barrels**

| District or State | Week Ending May 27 | Week Ending May 20 |
|---|---|---|
| TEXAS— | | |
| Texas Panhandle | 43,150 | 43,650 |
| North and West Central Texas | 71,650 | 72,875 |
| West Texas | 159,525 | 159,850 |
| East Central Texas | 58,000 | 58,500 |
| East Texas Field | *806,000 | **807,000 |
| South Texas | 48,800 | 48,225 |
| Total Texas outside Gulf Coast | 1,187,125 | 1,190,100 |
| Texas Gulf Coast | 181,950 | 172,950 |
| Total Texas | 1,369,075 | 1,363,050 |
| OKLAHOMA— | | |
| Oklahoma City | 95,395 | 160,750 |
| Seminole Area | 124,800 | 129,740 |
| Others | 162,950 | 170,670 |
| Total Oklahoma | 383,145 | 461,160 |
| KANSAS— | | |
| Ritz-Decker | 18,540 | 18,650 |
| Voshell | 5,920 | 6,100 |
| Others | 80,990 | 85,610 |
| Total Kansas | 105,450 | 110,360 |
| LOUISIANA— | | |
| North Louisiana | 25,700 | 27,275 |
| Louisiana Gulf Coast | 40,900 | 42,000 |
| Total Louisiana | 66,600 | 69,275 |
| ARKANSAS | 29,750 | 29,925 |
| CALIFORNIA— | | |
| Long Beach | 74,000 | 73,000 |
| Santa Fe Springs | 54,500 | 54,500 |
| Huntington Beach | 29,500 | 29,500 |
| Dominguez | 20,600 | 19,200 |
| Inglewood | 11,700 | 12,100 |
| Venutra Avenue | 33,000 | 33,200 |
| Seal Beach | 11,800 | 11,400 |
| Midway-Sunset | 46,500 | 47,000 |
| Elwood | 13,300 | 13,400 |
| Kettleman Hills | 64,000 | 63,000 |
| Playa del Rey | 11,600 | 11,800 |
| Others | 114,500 | 116,900 |
| Total California | 485,000 | 485,000 |
| MOUNTAIN STATES— | | |
| Wyoming | 29,400 | 30,950 |
| Montana | 5,750 | 5,900 |
| Colorado | 2,550 | 2,650 |
| New Mexico | 36,100 | 36,050 |
| Total Rocky Mountain States | 73,800 | 75,550 |
| EASTERN STATES | 89,150 | 87,750 |
| MICHIGAN | 16,050 | 16,400 |
| Total United States | 2,618,020 | 2,698,470 |

*Reported production only. Actual output, including excesses above allowable, estimated at 980,000 barrels daily.
**Reported production only. Actual output, including excesses above allowable, estimated at 998,000 barrels daily.




## Steady Improvement in Mid-Continent Market

SEVERAL factors combined during the week to bring about a steady improvement in the Mid-Continent refined gasoline market but prices in this division remained practically unchanged. Contract shipments continued to move at a satisfactory rate and many jobbers who heretofore have not protected themselves with marginal contracts were making strenuous efforts to do so. Refiners, however, were not anxious to enter into more marginal contracts and as result jobbers were forced into the open market. The East Texas refinery situation was reported better than in many months and prices there were boosted slightly early in the week. Reports that plans are under way to increase the Federal tax from the present one cent to 1¾ cents appeared to have some effect and likely will have a marked effect if the increase actually is made. It will be remembered that in 1932, when the Federal tax was enacted, gasoline which moved before the tax became effective was allowed to go free. At that time the refined market experienced a buying spree. Should a similar situation obtain this year buying for a short period of time probably would be at an even greater rate since the general policy for many months has been to carry only minimum stocks.

Reports that Standard Oil Company of Indiana is preparing several constructive changes in its retail marketing methods contingent upon acceptance by other major retailers in middle west territory, also exerted a beneficial effect upon the Mid-Continent refined market. It was believed that through the concerted effort of several of the large retailers much can be done to eliminate practices which have been exceedingly harmful for many months.

Daily average net movement of storage oil in Kansas and Oklahoma was estimated at 39,100 barrels withdrawal during the week ending May 16 compared to 5,500 barrels daily net withdrawal during the preceding week. The sudden change in rate of withdrawal apparently can be accounted for solely on the fact that a large number of producers in Kansas and Oklahoma have shut in their wells in protest of the present price for crude oil. While the amount shut in does not involve a large percentage of the total allowable production from the flush pools demand for oil has been on the increase and the shut in production amounts to enough to increase demand to a figure in excess of supply.

Prices in the Group 3 area, Oklahoma, exclusive of the Federal tax appeared to be as follows:

### Refinery Gasolines

Low octane U. S. Motor fuel, 2 to 2⅛ cents; middle octane 2⅛ to 2⅜ cents; high octane, 2½ to 2⅝ cents; 60-62, 400 e.p., 2⅛ to 2¼ cents; 64-66, 390 e.p., 2¼ to 2⅜ cents; 64-66, 375 e.p., 2½ to 2⅝ cents; and 68-70, 350 e.p., 2⅝ to 2¾ cents.

### Natural Gasolines

The 14 to 15 pound vapor pressure grades, 2¼ to 2⅜ cents; 16 to 18 pound vapor, 1¾ to 2 cents; 22 to 24 pound vapor, 1¼ to 1½ cents; and 26-70, 1 to 1⅛ cents. The 16 to 18 pound grades were down from ¼ to ⅛ cents, 22 to 24 pound grades down ¼ cent and 26-70 grade down about ¼ cent.

### Kerosenes

The 41 to 43 gravity water white, 2¼ to 2⅜ cents; 42 to 44 gravity, 2⅜ to 2½ cents; and 44 to 46 gravity, 2¾ to 2⅞ cents.

## Increasing Production Worrys California

A GRADUALLY increasing production has placed California in a less advantageous position than it occupied six weeks ago, but the tension which usually accompanies these bulges is not present. Ability of the state to move some of its stocks to districts which had been showing little interest has been a good influence.

Increased shipments of fuel oil to the Atlantic Seaboard has removed some of the heavier fractions which were overhanging the market. Tariff restrictions and excise taxes placed upon imports of fuel oil have been direct aids to California exporters who have had difficulty in competing with Venezuela along the Atlantic Coast.

The new Mountain View field in Kern County may have a strong influence upon the gasoline market in the San Joaquin Valley. This field produces a light oil, and several independent operators will develop a large portion of the area.

The old Midway-Sunset district, still the chief source of supply in Kern County, is gradually becoming more active. Major companies are expected to drill a limited number of wells as offsets, and as a means of insuring a steady supply of intermediate gravity oil which has not been in good demand.

The Los Angeles basin does not have a field which can flood the market on short order. Huntington Beach has become active, but the 4400-foot zone there is not capable of increasing the field potential more than a limited amount. Other fields are in no immediate danger of extensive drilling operations.

The Orient and Australia have been buying heavily from California, but Russia has been selling China and Japan on the theory that it will be able to supply the normal demands for that vast area. It is impossible to determine the significance of the Russian supply, but it is known that this country has shipped kero-

## Crude Runs to Stills, Motor Fuel Stocks, Gas and Fuel Oil Stocks and Cracked Gasoline Production, Week Ended May 20, 1933

**(Figures in barrels of 42 gallons each)**

| DISTRICT | Daily Refining Capacity of Plants | | | Crude Runs to Stills | | MOTOR FUEL STOCKS | | | | Gas and Fuel Oil Stocks | Daily Charging Capacity of Cacking Units | | | Cracked Production Daily Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Potential Rate | Reporting | | Daily Average | % Operated | (a) At Refineries | Bulk Term., in Transit & Pipe Lines | (b) Other M. F. Stocks | Total Motor Fuel | | Potential Rate | Reporting | | |
| | | Total | % | | | | | | | | | Total | % | |
| East Coast | 644,700 | 638,700 | 99.1 | 463,000 | 72.5 | 5,846,000 | 10,740,000 | 95,000 | 16,681,000 | 6,579,000 | 344,400 | 326,400 | 94.8 | 85,000 |
| Appalachian | 144,700 | 135,000 | 95.0 | 93,000 | 68.9 | 1,523,000 | 529,000 | 125,000 | 2,177,000 | 822,000 | 59,100 | 57,600 | 97.5 | 23,000 |
| Ind., Ill., Ky | 434,900 | 424,000 | 97.5 | 304,000 | 71.7 | 5,945,000 | 2,684,000 | 44,000 | 8,673,000 | 3,779,000 | 341,400 | 328,200 | 96.1 | 111,000 |
| Okla., Kans., Mo. | 459,300 | 390,000 | 84.9 | 216,000 | 55.4 | 3,350,000 | 1,280,000 | 255,000 | 4,885,000 | 3,076,000 | 257,400 | 238,100 | 92.5 | 60,000 |
| Inland Texas | 315,300 | 177,700 | 56.4 | 101,000 | 56.8 | 1,295,000 | 199,000 | 243,000 | 1,737,000 | 2,164,000 | 117,300 | 95,100 | 81.1 | 22,000 |
| Texas Gulf | 555,000 | 542,000 | 97.7 | 455,000 | 83.9 | 5,494,000 | 222,000 | 205,000 | 5,921,000 | 5,957,000 | 506,500 | 495,500 | 97.8 | 104,000 |
| Louisiana Gulf | 146,000 | 142,000 | 97.3 | 108,000 | 76.1 | 1,172,000 | 350,000 | ..... | 1,522,000 | 1,969,000 | 74,400 | 74,400 | 100.0 | 18,000 |
| North La.—Ark. | 89,300 | 79,000 | 88.5 | 44,000 | 55.7 | 210,000 | 76,000 | 30,000 | 316,000 | 579,000 | 29,500 | 25,500 | 86.4 | 9,000 |
| Rocky Mountain | 152,000 | 138,000 | 90.8 | 40,000 | 29.0 | 1,235,000 | ..... | 29,000 | 1,264,000 | 656,000 | 71,400 | 68,100 | 95.4 | 10,000 |
| California | 915,100 | 866,100 | 94.6 | 442,000 | 51.0 | 7,202,000 | 4,300,000 | 2,484,000 | 13,986,000 | 98,428,000 | 197,700 | 197,700 | 100.0 | 40,000 |
| TOTALS WEEK: May 20, 1933 | 3,856,300 | 3,532,500 | 91.6 | 2,266,000 | 64.1 | 33,272,000 | 20,380,000 | 3,510,000 | 57,162,000 | 124,009,000 | 1,999,100 | 1,906,600 | 95.4 | 482,000 |
| May 13, 1933 | 3,856,300 | 3,532,500 | 91.6 | 2,243,000 | 63.5 | 32,880,000 | 20,334,000 | 3,505,000 | 56,719,000 | 123,308,000 | 1,999,100 | 1,906,600 | 95.4 | 478,000 |

Below are set out estimates of Crude Runs and Motor Fuel Stocks on B. of M. Basis for Week May 20, 1933, compared with certain May 1932 Bureau figures.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Estimate B. of M. Basis Week May 20, 1933 | 2,390,000 | (c) | 34,070,000 | 21,180,000 | 3,510,000 | 58,760,000 | | 515,000 |
| U. S. B. of M., May 1932 Figures—: | | 5/1 | 42,054,000 | 22,412,000 | 4,345,000 | 68,811,000 | | |
| May 1932 Daily Average Crude Runs | 2,409,000 | 5/31 | 40,611,000 | 24,254,000 | 4,270,000 | 69,135,000 | May 1932 Daily Average Cracked Prod. | 494,000 |

(a) Stocks at refineries only.

(b) Estimated. Includes unblended natural gasoline at refineries and plants, also blended motor fuel at plants.

(c) Estimated to permit comparison with A. P. I. Economics Report which is on Bureau of Mines basis.

sene and some gasoline as prices below those asked by American shippers.

Kerosene and gas oil have been moving satisfactorily, because of a better Oriental demand.

## Little Change in Import Situation

IMPORTS of crude and refined oil at principal United States ports for the week ending May 20 totaled 501,000 barrels, a daily average of 71,571 barrels, compared with 117,571 barrels daily the previous week and 99,500 barrels daily for the four weeks ended May 20. These figures are from reports of the American Petroleum Institute.

The 501,000 barrels included 254,000 barrels received at New York, 111,000 barrels at Philadelphia, and 69,000 barrels at other Atlantic ports, and 67,000 barrels (crude oil) received at New Orleans. The total shipments involved 358,000 barrels of crude oil and 143,000 barrels of fuel oil.

Receipts of California oils, crude and refined, at Atlantic and Gulf Coast ports for the week ended May 20 totaled 149,000 barrels, or 21,285 barrels daily, against 3571 barrels daily the previous week and 38,464 barrels daily for the four weeks ended May 20.

### Comparison of Permits Granted For New Wells

| State | For week ending May 20 | Total this month | Total this year | Total this date last year | 1932 year total |
|---|---|---|---|---|---|
| Arkansas | 0 | 0 | 28 | 8 | 33 |
| California | 13 | 23 | 111 | 144 | 354 |
| Louisiana | 15 | 38 | 190 | 189 | 451 |
| Kansas | 5 | 24 | 207 | 234 | 463 |
| Michigan | 10 | 16 | 100 | 49 | 183 |
| Oklahoma | 14 | 60 | 383 | 429 | 1054 |
| Texas | 120 | 304 | 2206 | 3355 | 7099 |
| Total | 177 | 465 | 3225 | 4408 | 9637 |

## Slight Increase Shown In Runs to Stills

RUNS of crude oil to stills in the United States during the week ended May 20 averaged 2,266,000 barrels daily, counting plants operated by refiners controlling 91.6 per cent of the country's estimated total refining capacity of 3,856,300 barrels daily.

The companies whose operations were included in that report, as compiled by the American Petroleum Institute, also reported that at the end of the week they held in storage at refineries 33,272,000 barrels of gasoline and 124,009,000 barrels of gas and fuel oil. Gasoline at bulk terminals, in transit, and in pipe lines amounted at the same time to 20,380,000 barrels.

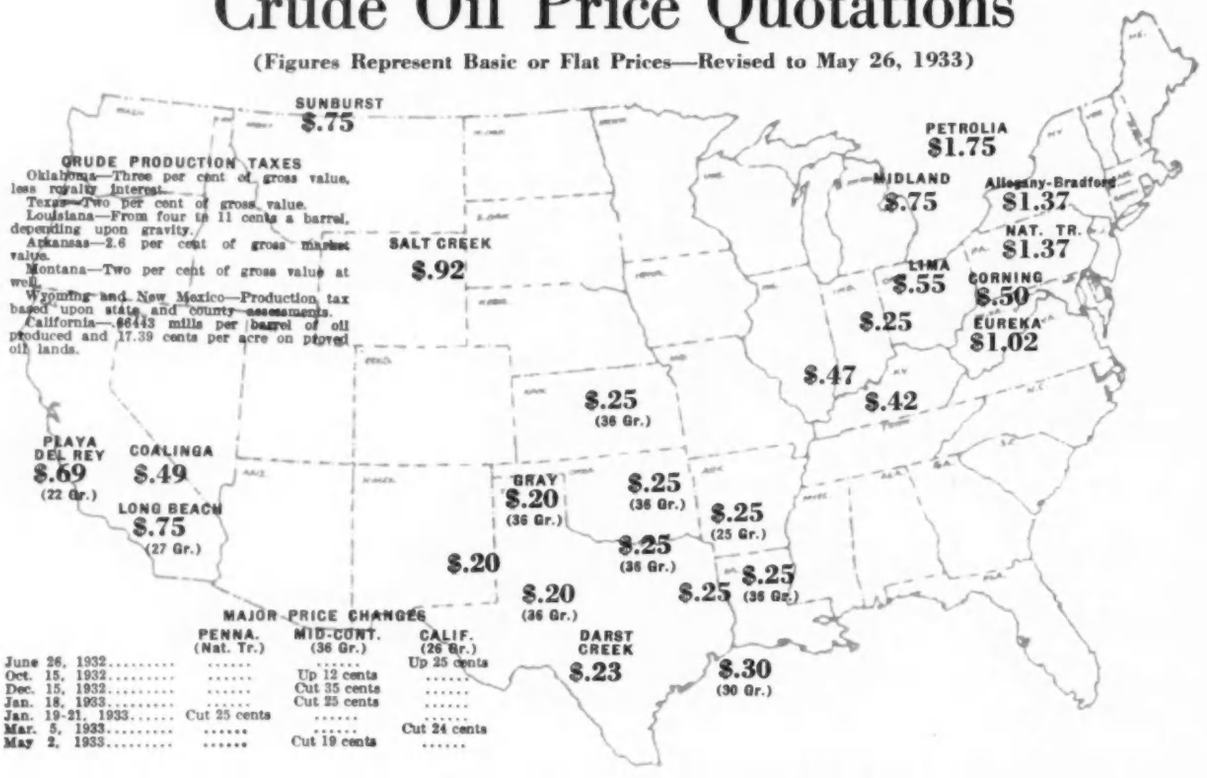
Cracked gasoline production during the week of May 20 averaged 482,000 barrels daily for companies owning 95.4 per cent of the total potential charging capacity of all cracking units in the country.

### Summarized Review of Week's Field Results

| State | Completions | Oil wells | Gas wells | Failures | Init. prod. |
|---|---|---|---|---|---|
| Arkansas | 1 | 0 | 0 | 1 | 0 |
| California | 5 | 5 | 0 | 0 | 8,100 |
| Illinois | 0 | 0 | 0 | 0 | 0 |
| Indiana | 6 | 2 | 4 | 0 | 38 |
| Kansas | 11 | 9 | 0 | 2 | 9,312 |
| Kentucky | 4 | 2 | 0 | 2 | 202 |
| Louisiana | 7 | 2 | 0 | 5 | 2,955 |
| Michigan | 6 | 4 | 0 | 2 | 1,307 |
| Mississippi | 1 | 0 | 1 | 0 | 0 |
| New Mexico | 3 | 3 | 0 | 0 | 12,885 |
| New York | 2 | 2 | 0 | 0 | 10 |
| Ohio | 10 | 1 | 5 | 4 | 76 |
| Oklahoma | 18 | 8 | 3 | 7 | 661 |
| Pennsylvania | 10 | 6 | 3 | 1 | 18 |
| Texas | 75 | 48 | 1 | 26 | 169,677 |
| West Virginia | 5 | 0 | 4 | 1 | 0 |
| Miscellaneous | 0 | 0 | 0 | 0 | 0 |
| Totals | 164 | 92 | 21 | 51 | 205,241 |

# Crude Oil Price Quotations

**(Figures Represent Basic or Flat Prices—Revised to May 26, 1933)**




**MAJOR PRICE CHANGES**

| | PENNA. (Nat. Tr.) | MID-CONT. (36 Gr.) | CALIF. (26 Gr.) |
|---|---|---|---|
| June 26, 1932 | ..... | ..... | Up 25 cents |
| Oct. 15, 1932 | ..... | Up 12 cents | ..... |
| Dec. 15, 1932 | ..... | Cut 35 cents | ..... |
| Jan. 18, 1933 | ..... | Cut 25 cents | ..... |
| Jan. 19-21, 1933 | Cut 25 cents | ..... | ..... |
| Mar. 5, 1933 | ..... | ..... | Cut 24 cents |
| May 2, 1933 | ..... | Cut 19 cents | ..... |

**Oklahoma and Kansas:** effective May 6, 1933, flat price 25 cents; except Magnolia, May 9, 1933, below 28 gravity, 20 cents, 28 to 34.9 gravity 23 cents, and 35 gravity and above 25 cents.

**North and Central Texas:** Effective May 2, 1933, flat price 25 cents

**East Texas:** Effective April 26 to May 10, 1933, flat price 25 cents.

**Corsicana, Texas, Heavy:** Magnolia, effective May 8, 1933, 20 cents.

**Texas Panhandle:** Effective May 2, 1933, Gray County crude 20 cents and Carson and Hutchinson County crudes 18 cents.

**West Texas and New Mexico:** Effective May 2, 1933, flat price 20 cents. Includes crude from Crane-Upton, Crockett, Ector, Howard-Glasscock, Mitchell, Pecos, Jones, Fisher and Winkler Counties, Texas, and Lea County New Mexico.

**Gulf Coast:** Effective May 2, 1933, flat price 30 cents. Includes Texas and Louisiana Coastal fields.

**Conroe, Texas:** Effective May 2, 1933, Humble and Texas, 30 cents; May 5, 1933, Tide Water, 40 cents.

**South Texas:**

**Darst Creek:** Effective May 2, 1933, 23 cents. **Luling:** Magnolia, effective May 8, 1933, 20 cents. **Salt Flat:** effective May 2, 1933, 23 cents. **Lytton Springs:** Magnolia, effective May 8, 1933, 25 cents. **Mirando:** effective May 2, 1933, 25 cents. **Pettus:** effective May 2, 1933, 35 cents. **Refugio Heavy:** effective May 2, 30 cents. **Refugio Light:** same as Gulf Coast. **Saxet:** effective May 3, 1933, 30 cents.

**North Louisiana and Arkansas:**

**Caddo, Homer, Haynesville, Bull Bayou, Sabine, Crichton, DeSoto-Red River, Cotton Valley, Sarepta, Cartersville, Pine Island, El Dorado, Rainbow Light:** effective May 3, 1933, 25 cents.

**Urania:** Effective May 6, 1933, Louisiana Oil Ref. Corp., 15 cents.

**Smackover:** Effective Jan. 20, 1933, by Standard and Magnolia, and May 3 and 5 by Texas and Gulf, respectively, 20 cents. Effective Jan. 20, 1933, by Louisiana Oil Refining Co., 25 cents.

**Rocky Mountain States:** (Effective December 16, 1932).

**Salt Creek:** Below 29 gravity 76 cents; 29-29.9 gravity 78 cents with differential of 2 cents each degree to 40 and above. Top price $1.00.

**Elk Basin and Grass Creek:** 87 cents; **Big Muddy:** effective Jan. 24, 1933, 50 cents; **Lance Creek:** 92 cents; **Rock Creek:** effective Jan. 24, 1933, 46 cents; **Sunburst:** effective November 7, 1932, 75 cents; **Osage:** 98 cents; **Cat Creek:** $1.20; **Pondora:** 90 cents; **Hogback, New Mexico:** 80 cents.

**Mid-Western States:** (Effective May 9, 1933.)

**Lima:** 55 cents; **Indiana:** 25 cents; **Illinois:** 47 cents; **Princeton:** 47 cents; **Wooster:** 50 cents; **Western Kentucky:** 42 cents.

**Pennsylvania:** (Effective May 22, 1933).

**Bradford District:** $1.37; **National Transit Oil:** $1.37; **Southwest Pennsylvania Pipe Line Oil:** $1.07; **Eureka Pipe Line Oil:** $1.02; **Buckeye Pipe Line Oil:** 90 cents; **Corning Crude:** 50 cents.

**Michigan:** (Dec. 31, 1932). **Midland:** 95 cents. **Muskegon:** 76 cents to $1.00.

**Canada:** (Effective Jan. 18, 1933). **Petrolia:** $1.75; **Oil Springs:** $1.82.

**California—Posted by Standard Oil Company and Union Oil Company. Effective March 5, 1933, at 7:00 a.m.**

| Gravity | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14-14.9 | $ .55 | $ .55 | $ .55 | $ .55 | $ .55 | $ .55 | .. | .. | $ .55 | $ .55 | $ .55 | $ .55 | $ .55 | .. | $ .49 | $ .49 | $ .49 | $ .49 | $ .49 | $ .55 | .. |
| 15-15.9 | .55 | .55 | .55 | .55 | .55 | .55 | .. | .. | .55 | .55 | .55 | .55 | .55 | .. | .49 | .49 | .49 | .49 | .49 | .55 | .. |
| 16-16.9 | .55 | .55 | .55 | .55 | .55 | .55 | .. | .. | .55 | .55 | .55 | .55 | .55 | .. | .49 | .49 | .49 | .49 | .49 | .55 | $ .49 |
| 17-17.9 | .55 | .55 | .58 | .58 | .58 | .58 | .. | .. | .57 | .56 | .57 | .55 | .55 | .. | .49 | .49 | .50 | .49 | .49 | .55 | .49 |
| 18-18.9 | .57 | .55 | .61 | .61 | .60 | .61 | .. | .. | .59 | .58 | .59 | .55 | .57 | .. | .49 | .49 | .52 | .49 | .49 | .55 | .49 |
| 19-19.9 | .59 | .57 | .63 | .64 | .62 | .64 | .. | .. | .61 | .61 | .61 | .55 | .59 | .. | .49 | .49 | .54 | .49 | .49 | .55 | .49 |
| 20-20.9 | .61 | .59 | .64 | .67 | .64 | .66 | .. | F. O. B. | .62 | .63 | .63 | .55 | .61 | .. | .. | .52 | .56 | .49 | .49 | .56 | .52 |
| 21-21.9 | .63 | .62 | .66 | .69 | .66 | .68 | .. | .. | .64 | .66 | .65 | .55 | .63 | $ .57 | .. | .55 | .58 | .51 | .50 | .57 | .55 |
| 22-22.9 | .65 | .64 | .68 | .71 | .69 | .70 | .. | .. | .66 | .68 | .67 | .57 | .65 | .59 | .. | .57 | .60 | .53 | .52 | .58 | .57 |
| 23-23.9 | .67 | .67 | .70 | .73 | .71 | .72 | .. | .. | .68 | .70 | .69 | .60 | .67 | .62 | .. | .60 | .62 | .55 | .54 | .59 | .60 |
| 24-24.9 | .69 | .69 | .72 | .75 | .73 | .73 | $ .66 | .. | .70 | .73 | .71 | .62 | .69 | .64 | .. | .63 | .63 | .57 | .56 | .60 | .63 |
| 25-25.9 | .71 | .72 | .74 | .. | .75 | .75 | .68 | .. | .72 | .75 | .. | .65 | .71 | .66 | .. | .66 | .65 | .59 | .58 | .61 | .66 |
| 26-26.9 | .73 | .74 | .75 | .. | .77 | .77 | .70 | Subject to field gathering charge of 5c per barrel | .73 | .77 | .. | .68 | .72 | .69 | .. | .68 | .67 | .. | .. | .63 | .68 |
| 27-27.9 | .75 | .76 | .77 | .. | .. | .79 | .73 | .. | .. | .80 | .. | .. | .74 | .71 | .. | .71 | .69 | .. | .. | .65 | .. |
| 28-28.9 | .77 | .79 | .79 | .. | .. | .81 | .75 | .. | .. | .82 | .. | .. | .76 | .73 | .. | .74 | .71 | .. | .. | .67 | .. |
| 29-29.9 | .79 | .81 | .81 | .. | .. | .. | .78 | .. | .. | .84 | .. | .. | .78 | .76 | .. | .76 | .73 | .. | .. | .69 | .. |
| 30-30.9 | .81 | .84 | .83 | .. | .. | .. | .81 | .. | .. | .. | .. | .. | .80 | .78 | .. | .79 | .75 | .. | .. | .71 | .. |
| 31-31.9 | .. | .. | .. | .. | .. | .. | .83 | .. | .. | .. | .22 | .. | .82 | .80 | .. | .82 | .. | .. | .. | .. | .. |
| 32-32.9 | .. | .. | .. | .. | .. | .. | .86 | .. | .. | .. | .. | .. | .84 | .83 | .. | .85 | .. | .. | .. | .. | .. |
| 33-33.9 | .. | .. | .. | .. | .. | .. | .. | $ .83 | .. | .. | .66 | .. | .86 | .85 | .. | .87 | .. | .. | .. | .. | .. |
| 34-34.9 | .. | .. | .. | .. | .. | .. | .. | .85 | .. | .. | .68 | .. | .88 | .87 | .. | .. | .. | .. | .. | .. | .. |
| 35-35.9 | .. | .. | .. | .. | .. | .. | .. | .87 | .. | .. | .70 | .. | .. | .90 | .. | .. | .. | .. | .. | .. | .. |
| 36-36.9 | .. | .. | .. | .. | .. | .. | .. | .89 | .. | .. | .72 | .. | .. | .92 | .. | .. | .. | .. | .. | .. | .. |
| 37-37.9 | .. | .. | .. | .. | .. | .. | .. | .91 | .. | .. | .74 | .. | .. | .94 | .. | .. | .. | .. | .. | .. | .. |
| 38-38.9 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .76 | .. | .. | .96 | .. | .. | .. | .. | .. | .. | .. |
| 39-39.9 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .78 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |

1—Signal Hill. 2—Seal Beach, Alamitos Heights, Union posts to 26 at 74 cents. 3—Huntington Beach, Union posts through 26 at 75 cents. 4—Ingle wood. 5—Playa del Rey, Union posts from 19, 62 cents, through 26 at 77 cents. 6—Olinda-Brea Canyon. 7—Athens-Rosecrans, Dominguez, Union posts through 35 gravity, 90 cents. 8—Elwood Terrace. 9—Torrance, Union posts only through 25 gravity. 10—Richfield. Union posts only through 25 gravity. 11—Whittier-La Habra. 12—Montebello, Union posts only through 25 gravity. 13—Coyote Hills, Union posts only from 14 through 24 gravity. 14—Santa Fe Springs, Union posts only 24 through 35 gravity. 15—Newhall, McKittrick, Kern River. (See 16). 16—Midway-Sunset, Elk Hills, Buena Vista Hills, Union quotes 44 cents through 13 gravity and stops at 30 gravity, 79 cents. Union schedule applies this price to fields listed under 15. 17—Lost Hills, Union quotes 44 cents through 13 gravity. 18—Coalinga, Union quotes 44 cents through 13 gravity. 19—Wheeler Ridge, Union only. 20—Santa Paula, Union only. 21—Kettleman Hills.

# Engineers and Geologists *Find Much of Interest in Results of* Recent California Earthquake

**ORIFICE meters at Huntington Beach, Long Beach and Seal Beach made excellent seismographs during the earthquake of March 10. It is also very interesting to note that smaller shocks were recorded several days prior to the major temblor. A meter chart at O. C. Field Gasoline Corporation absorption plant at Huntington Beach showed a decided disturbance at 1:15 a. m., March 8, but it required the major shock two days later to prove the action of the pen arm was caused by the shock. It happened that three or four major oil fields were almost exactly over the epicenter of the shock, and the orifice meters practically became seismographs. As minor shocks do not always precede the major disturbance, orifice meters near the center of slippage probably can not be depended upon to predict earthquakes.**

GEOLOGISTS have been attempting to determine the causes and effects of the recent Southern California earthquake which centered near the major oil fields of the Los Angeles basin. Definite and tangible evidence is being sought, but in the absence of appreciable underground movements which may be proved and checked, theory and a limited surface movement are being used as a basis for conclusions. Both vertical and horizontal movements took place, but the horizontal shifting was much more pronounced than the tendency to tilt through leverage movements.

Petroleum engineers have been offered an equal opportunity to study the effect of the main shock on surface equipment; casing, tubing and rods in wells; water shutoffs in wells, and sand conditions. They had much evidence with which to work, and have been able to cast theory aside in favor of tangible evidence.

Geology has sprung sensationally to the forefront since the temblor of March 10 seriously affected production in several Los Angeles basin fields. Such words as "fault," "folding" and "slippage" have taken on a very significant meaning, and Southern California is temporarily infested with great hordes of amateur geologists who can give their interpretation of an earthquake in a few words.

Inaccurate reports are being circulated concerning earth movements in and near Long Beach field. Some of the reports claim that the Long Beach field and the entire block of earth on which the city of Long Beach is built moved five feet inland and four feet oceanward, for a net gain of one foot inland. Other press reports state that the Long Beach coast line was raised three feet and moved inland 33 inches. Still another report insisted that the Seal Beach oil field slipped en block six inches toward the ocean after a shivering movement.

Geologists and engineers have been unable to check such movements, although there is evidence of both vertical and horizontal motion of the earth during the earthquake. Every foot of the Beverly-Newport fault line has been at least casually inspected, but only a limited change in surface appearances have been found. Small cracks, fissures, bulges and slippages have been found, but it is impossible to attribute all of these to the earthquake. Water rose in some of the sumps at Seal Beach, but the shaking seemed to have had a squeezing effect on the surface of the earth where there was a tendency to telescope the surface. The opposite effect was observed where small cracks were found.

The usual rush to find sensational evidence has not borne fruit. A few wild stories have been circulated but a careful investigation usually dissipates the rumor. Geologists and engineers have been combing the affected oil fields, and have succeeded in finding limited evidence of both vertical and horizontal earth motion.

Surface equipment was variously affected, and even earth movements have been calculated and classified from action of pipe line and pumping equipment. Pipe lines were offset slightly, and pump connections broken, but calculation of earth movements may not be checked accurately from movable equipment.

In the Seal Beach fields, bridges were raised from three to six inches. It is difficult to explain why bridges and approaches did not participate in any sinking movement of the earth. This failure of bridges to maintain the same level as the roads on either side was probably caused by a pinching movement during the quake. Foundations should have been more susceptible to sinking than the earth on which they rested, but a rocking movement could have squeezed the bridge foundation upward. The level of the bridges were not seriously affected.

The Seal Beach field consists largely of filled ground. It was originally a marsh and was drained to permit development. This filled ground actually seemed to act as a cushion, but the movement might have been greater than in more packed areas. Engines and compressors rest on piles and other artificial foundations, and compressor plants suffered little from the quake. They were fortunately built to resist more than the usual vibration, and the margin of safety proved valuable.

The greatest horizontal movement appears to have been from north to south in the Seal Beach and Long Beach fields. An oil tank at Seal Beach slopped over, and the black oil spilled over the northern and southern exposures of the tank. Pipe lines running north and south showed more breakage and telescoping than those running east and west. More derrick braces carrying north and south horizontal stresses were broken and those which would have been affected by an east-to-west motion. Some conflicting evidence was found, however, but this seems to mean that the horizontal motion was in every direction.

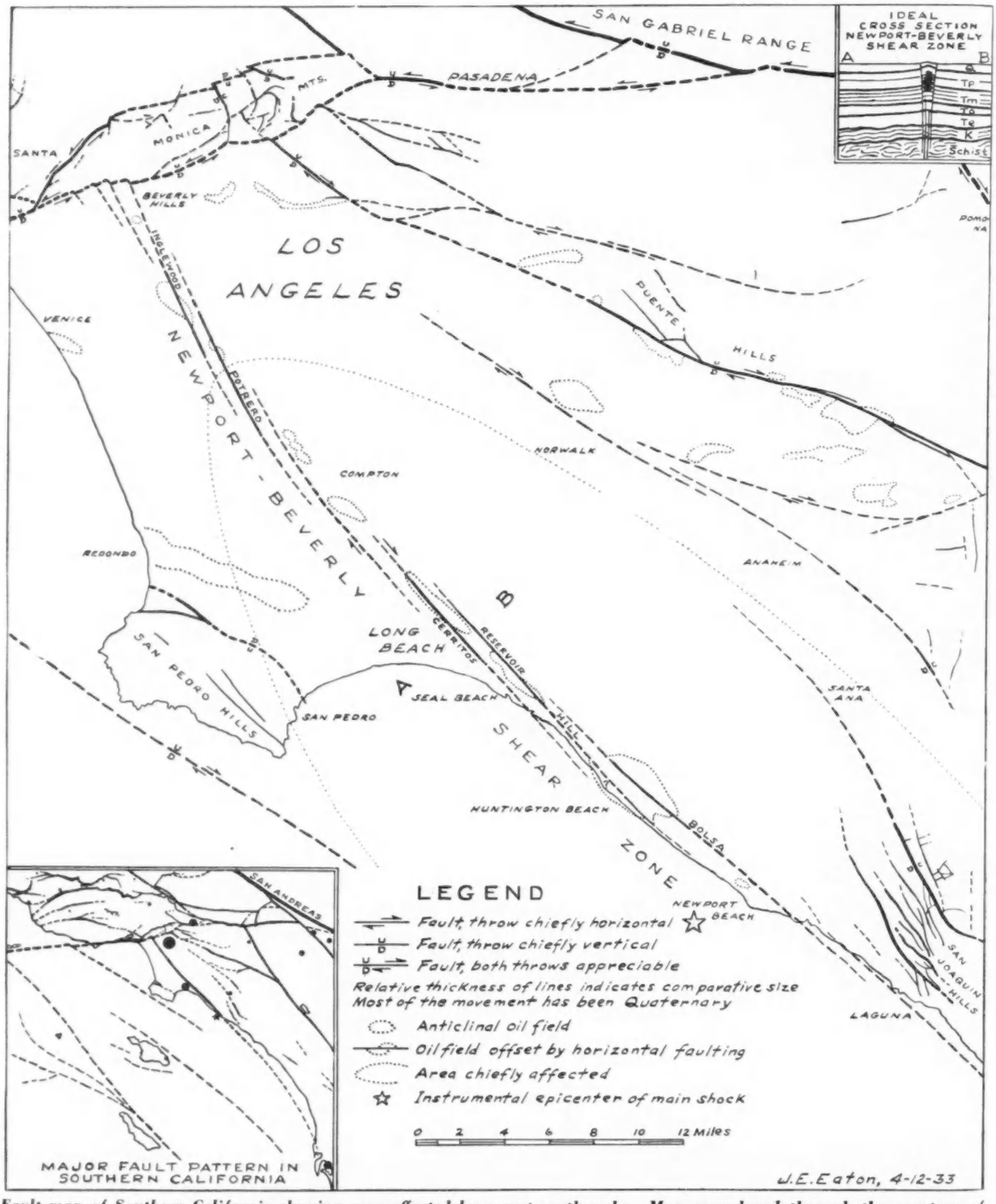
Engineers observed damaged streets in the city of Long Beach and attempted to determine the principal horizontal motion. The east-west streets were damaged more than the north-south streets, indicating a greater rocking from north to south than from east to west. The facing of nearly all brick buildings on some of the east-west streets fell out into the streets, while the damage on north-south streets in the same area was considerably less.

Derrick foundations at Seal Beach, Huntington Beach and

Long Beach were examined after the major shock. A surprisingly few were thrown seriously out of line, but many supports were broken. The guy wires were strong enough to withstand the horizontal motion, but they probably would not have stood a considerable vertical motion.

Evidence that a large block of the earth actually tilted back and forth has been offered by some geologists. One well known geologist and petroleum engineer insists that he rushed out into his garden in time to see the entire surface rocking back and forth. Another man claims to have seen the vibrations and movements rushing along the surface of the ground. A check of these statements with geologists who are experts on earthquakes establishes them as true. North of the Long Beach field, many people saw the sidewalks buckle and break.

At Huntington Beach, meter charts of all kinds registered the earthquake almost as accurately as seismographs. One




***Fault map of Southern California showing area affected by recent earthquake. Map reproduced through the courtesy of the Bulletin of the American Association of Petroleum Geologists, June Number.***

chart on a gas line registered the first shock at 5:55 p. m., March 10, and showed 83 more shocks before the orifice meter chart was removed around 8:30 the following morning.

Meter readers reported before the major shock occurred that they had observed a nervousness on charts. This had been noticed as early as two weeks before the earthquake struck. The "jumpy" nature of the orifice meter charts was not greatly unlike a sudden change in pressure, but it was explained by the major shock. Geologists believe that minor slippages were numerous for days, and perhaps weeks, before the main temblor struck. It is obvious that orifice meter charts would be useless in predicting earthquakes unless located almost over the affected area. This was exactly the case at Seal Beach, Huntington Beach and Long Beach.

Geologists and petroleum engineers have been telling for years what to expect in case of an earthquake along the Beverly Hills-Newport fault plane. They have been busy during the past month in attempting to prove what they thought is correct. The mechanical engineer has done much to improve construction methods, and deserves some credit for the lack of damage in some districts.

### Little Damage in Wells

One of the largest operators in the Seal Beach field has surveyed all of its producing wells, and has found little evidence of damage below the surface. No collapsed casing was found, and rod and tubing strings were not seriously affected. This company expects to check the condition of all water shutoffs through observation and comparison with past production records. It is admitted that water shut offs could have been affected where the casing strings remained intact. The kneading and rocking motion of the earth could have telescoped the casing shoe and the cement, or could have caused a parting where the major strain near the surface was upward. Little change has been noted in the amount of water produced by any well.

The earthquake apparently centered five or six miles below the surface, and much of the force was naturally absorbed before it reached the deepest producing wells. This deep disturbance allowed a fairly uniform movement between the surface and 8000 feet. The motion must have been roughly the same at 7000 or 8000 feet as at a few hundred feet, since casing strings and surface equipment was damaged little. A shivering sensation alone would have been too light to break a heavy casing string.

Not more than two wells in the Long Beach field were damaged below the surface, but many surface connections were broken. One casing string apparently parted south of the fault line running through the field, most of the older producers were not damaged. Flexibility of casing was proved by the small amount of damage. Movement below the surface was much less than originally reported.

The Los Angeles basin is definitely a seismic area, and earthquakes should be expected. In the past—perhaps a thousand years ago—violent earth movements occurred. The total horizontal movement along the Beverly-Newport shear zone has been as much as one mile. The vertical movement has been much less pronounced, but in the twisting and pinching horizontal movement, some vertical slippage took place along the full length of the fault line.

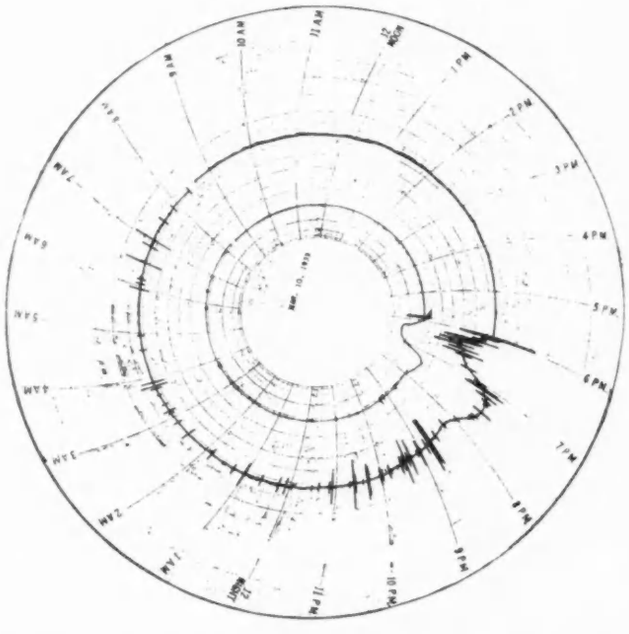
Evidence of a constant unrest has been found along the major fault line running through or near the largest Los Angeles basin oil fields. The rocks and formations along these great earth breaks are holding only by friction. These rocks are constantly trying to find a more settled position. When the constant vibration touches off a major underground movement along the fault line, an earthquake occurs and a new alignment along the break takes place.

During a very few seconds the rocks and formations find new resting places. The intensity of the earthquake depends upon the violence of the underground movements and the distance below the surface. Most of the shock is absorbed by the earth before it reaches the surface where the center of the disturbance is very deep.

In case of violent breaks at the surface, the horizontal movement often shakes the earth faster than buildings and equipment on the surface. This throws surface equipment radically out of line. Evidences of horizontal movements were recorded in several oil fields where pipe lines were broken from heavy pump and engine connections, and slopping over of oil tanks indicated direction of movement.

The earth is restless all the time and actually tends to "flow". This flow is more pronounced along major fault lines than in conformable districts. The violent twisting and kneading movements affects faulted areas so much that adjustments naturally take place along these seams.

The throw along the Newport-Beverly shear zone is chiefly horizontal. Some vertical movement has taken place, but the main stress is tending to pull the earth apart in a horizontal manner. This is not an altogether unfortunate fact, as a violent vertical and horizontal slippage might be very serious. The San Andreas fault, greatest break in California, runs northwest and southeast, and misses the center of the recent Los Angeles basin disturbance by about 50 miles. A horizontal movement of 24 miles has been found along sections of this fault line, and a vertical movement of one mile has not been uncommon. It has required a great period of time to account for such a movement. The thousands of earthquakes during the past several millions of years have caused these movements. Some of these disturbances have been very violent and destructive, particularly along the southern end of the fault line. It is reasonable to suppose that earthquakes will occur in the future as they have in the past. The time between violent disturbances is usually so great that one is forgotten before another occurs.




***Orifice meter chart on Standard Gasoline Company's gas line near Santa Fe Springs. This chart shows the major disturbance at 5:55 p.m., March 10, and about 85 subsequent shocks.***

**Oil Equipment Exposition Brings Out Many New Field Specialties**
(*Continued from page 15*)

electric and gas engines and rig lighters, and separators, and flow tanks.

Exhibits of marketing divisions of seven major oil companies were included in the show, the concerns so represented being Shell Petroleum Corporation, Humble Oil & Refining Company, Gulf Refining Company, Magnolia Petroleum Company, The Texas Company, and Sinclair Refining Company.

Aside from the displays there were four motion picture machines in operation at the exposition, adding to its educational value.

To promote safety and greater efficiency among oil field workers there were performances during six of the seven nights of the exposition demonstrating safety work and first aid training. Those performances were carried out by E. D. Bullard Company of San Francisco with cooperation of C. F. Herbert, United States Bureau of Mines first aid trainer, various major oil companies, and the Harris County Emergency Corps.

***Spontaneous repartee and dormant historic ability of Harry Potts of Kerotest Valve Company and Red Davis of Baker Oil Tools, Inc., electrified visitors of the oil show in Houston when the former surprised the latter with the cup above in a beautiful eulogy of Red's decorative genius, as evidenced at the Baker booth. Red responded, no whit disturbed, but claimed his style was cramped by a mixed audience.***

The first aid contests were in charge of J. J. Delahide, Gulf Coast district manager of E. D. Bullard Company. The Harris County Emergency Corps furnished first aid teams on three nights, and on the other nights the demonstrations were furnished by the Houston team of the United Gas System, the Humble, Texas, team of Humble Oil & Refining Company, and the Beaumont, Texas, team of Magnolia Petroleum Company. Houston ambulance companies furnished ambulances and crews. The programs covered practically all classes of accidents and first aid treatment for each.

## Expect Decision Soon On Conroe Allowables

Houston.—Decision on the method of establishing per well allowables in Conroe field, which will involve a secondary decision of whether wells producing from the upper Cockfield sand shall be regarded as producing from a separate reservoir, is expected soon.

During a hearing conducted by the Texas Railroad Commission in Houston May 23 and 24, testimony was presented as to possible methods of equitable distribution of production, the acre sand content and well potential factors dominating most suggestions.

J. S. Abercrombie, independent operator of Houston, testified he believed no well in the field should be allowed to produce more than 200 barrels per day, and that in his opinion the 2000 barrels per day recently allowed two wells of Feltex Oil Corporation by federal court order would prove a hazard to the field if allowed to continue.

H. H. McKee and John Weinzierl, consulting geologists, testified there were two reservoirs at Conroe, the upper Cockfield and the Conroe. Weinzierl testified he did not believe communication existed between the two sands.

W. W. Scott, engineer, Humble Oil & Refining Company, testified in his opinion uncontrolled production from the upper Cockfield sand would effect the reservoir beneath in the Conroe sand. He recommended ratable production as a means of prevention of physical waste.

Lawrence Lipper, Houston attorney representing Alpha Oil Company, claimed testimony presented in furtherance of the common reservoir theory at Conroe was based on theory, while that contending two reservoirs was based on concrete evidence.

## East Texas Output 918,367 Barrels

Austin, Texas.—Reports to the Texas Railroad Commission from its East Texas office state that production for the week ending May 22, was 6,428,564 barrels, a daily average of 918,367 barrels.

Of the total production, 445,299 barrels was listed as "over-production," a daily average of 63,614 barrels.

The reported daily average allowable was 854,752 barrels, which evidently included some back-allowable production, as the official daily allowable was reported as 826,895 barrels. This would indicate that the daily average back-allowable amounted to 27,857 barrels.

Pipe lines carried 4,870,051 barrels of the oil leaving the field, and tank cars (3717 cars) accounted for 794,082 barrels additional oil. Gauging reports and estimates on runs to local refineries amounted to 407,894 barrels; pipe line storage increase of 356,537 barrels was included in the total.

There was a total of 3,142,268 barrels of oil in pipe line storage at the end of the week, an increase of 356,537 barrels.

## Texas Will Not Change Anti-Trust Laws

Austin, Texas.—The Texas Legislature last Monday refused to consider a bill which would have liberalized the anti-trust laws of Texas to conform to the president's economic recovery program.

In a message to both houses, Governor Ferguson suggested that this be done, and quoted a telegram which she had received from Senator Morris Sheppard, which read in part, as follows:

"Liberalization of our so-called anti-trust statutes would seem advisable at this time . . . (Sheppard suggested that) . . . During the present emergency, it shall not be unlawful, our so-called anti-trust laws to the contrary notwithstanding, for any Texas citizen or institution to do those things which may be approved by the president in connection with his national industrial program."

Representative Gordon M. Burns fought vigorously against the introduction of a bill proposed by Representative Roland Bradley of Houston, which would have fulfilled this request.

"This is just another attempt of the major oil companies to throw the anti-trust suit out of court 'by the back door,'" Burns declared. He referred to the Allred suit, evidence on which was being heard in Austin at the time. Burns charged that the whole plan was a scheme of the major oil companies to get control of the industry in Texas.

Bradley defended his bill, however, and declared that it would in no manner effect the anti-trust suit.

At a hearing on the bill held Tuesday night, several members of various chambers of commerce appeared before the house judiciary committee, and urged that the Sheppard plan be followed. They advocated the adoption of codes of ethics approved by the president, which were to be used as a guide in marketing practices.

## Federal Court Upholds East Texas Proration Order

(*Continued from page 8*)

used by counsel for plaintiffs to support their contentions that the present plan is arbitrary, unfair, etc., but the charges fell flat when testimony was given that all known errors in the first schedule has been eliminated. Griffin displayed a detailed map of the field, colored to show variations in well allowables, based on key wells' potential performance. The accuracy of this map was contested by John Kilgore, Wichita Falls, counsel conducting the examination of witnesses for plaintiffs.

Entire defense for the commission was conducted by Maurice Cheek and Neal Powers, assistants to Attorney General Jas. V. Allred, who was present in an advisory capacity. Robert E. Hardwick, Fort Worth, counsel for the Texas Oil & Gas Conservation Association, has aided the state in all previous federal court attacks on the validity of its orders, but because of concerns ordinarily trying to uphold the commission's orders having switched to the complainants side, he remained on the side lines as an interested observer.

### Sealey Suggests Plan

Fred Sealey, assistant division manager for The Texas Company, Houston, was placed on the stand by the plaintiffs as an expert witness. He advocated a lower allowable to prolong the flowing life of the field. Slower advance of the water drive from the west will eliminate danger of channeling, and likewise augment oil recoveries.

Suggestion was made to the court by Sealy that a fair and equitable plan of proration should incorporate such factors as bottom hole pressure and the number of cubic feet of sand thickness underlying each tract. His method would be predicated on the idea of giving each operator that portion of oil originally in place. Refusing to advance a definite figure as to what the field should be allowed to produce he contended that the figure should give full consideration to the drop in reservoir pressure resulting.

### Original Attacks

H. L. Hunt and Arch Rowan, officers of companies making the original attacks, were placed on the stand as witnesses. Both contended that the potential gauges taken on the key wells failed to reveal a true picture of flowing capacities of all wells. Hunt illustrated inequalities resulting from the order on several of his properties due to being offset by a cluster of closely drilled tracts bearing wells that had a combined allowable out of proportion to his orderly drilled tracts. Final pleadings for the plaintiffs were made by Clyde Sweeton, Houston attorney, while Neals Powers answered for the state.

The ranks of the operators waging the attack on the commission's order offered an unusual contrast in that the group joining Hunt Production Company and Rowan Nicholos Oil Company were all heartily in favor of proration being continued on a basis fulfilling their views on equity while another group represented by F. W. Fisher, Tyler attorney, were fighting for the omission of the acreage factor in any future order, and for the fixing of the allowable of the field to coincide with market outlet regardless of the level that may be attained under such an arrangement.

### Others Withdraw

There were others scheduled to take part in the hearing but withdrew because of conflicting pleas in order to launch an entirely new fight on the commission for a separate angle. Fisher identified his clients as being the Imperator Oil Corporation and 35 additional independents possessing something like 500 wells in the field. He referred to his clients as being "what the cultured and refined folks call proration violators and I have one quite respectable outfit in the group." This remark drew smiles from the court.

Consolidation of the petitions offered by Fisher with those of the operating units that only sought to have the court force the commission to retract the present plan and adopt one with a lower allowable and consideration of factors other than potentials caused considerable embarrasment to the latter.

## Effort Again Made to Remove Armstrong

Oklahoma City.—Efforts to remove W. J. Armstrong from the office of chief conservation officer of the Corporation Commission were renewed during the week, when J. S. "Jude" Askew took oath of office and appeared before the Corporation Commission to post the $15,000 bond required for the position. On May 15 Commissioners Walton and Hughes voted to replace Armstrong with Askew but Governor Murray indicated that he would not approve appointment of the latter. After this move on the part of the governor, Hughes joined Chairman Paul Walker in retaining Armstrong. Confronted with Askew's move on Monday, May 22, Commissioners Walker and Hughes held that the office of chief conservation officer, "is not and never has been vacant." Armstrong has held the position since 1925 and no charges of inefficiency have been brought against him. The present move appears to be another effort of the politicians to gain further foothold in Oklahoma oil affairs.

## 35 Miles of 50,000 Barrel Houston-Eatex Line Welded

Mexia, Texas. — Approximately 35 miles of pipe has been welded on the Sinclair Prairie Pipe Line Company's 140-mile, 12-inch crude line extending from Colonel's station, near Mexia to Huffman station, near Houston, and parallel to an old looped eight-inch carrier.

Upon the completion of the larger line in August the company will have a direct 12-inch carrier from the East Texas field to refinery and tanker terminals of the Sinclair Refining Company at Sinco, near Houston. Pipe for the new unit is being taken up in Oklahoma and Kansas, and shipped to Texas via rail.

An average of two miles of pipe is being welded daily by the four gangs at work on the line out of Colonels, Flynn, Polk and Honea stations.

Additional equipment is being installed at Polk and Huffman stations to augment the pumping capacity to between 75,000 and 80,000 barrels oil daily for the two lines. The large carrier will have a rated capacity of 50,000 barrels daily from Colonels station to Sinco.

## Texas Re-enacts Oil Felony Legislation

Austin, Texas.—Re-enactment of the oil felony bill by the Texas Legislature indicates that the act will certainly become law shortly, as Governor Ferguson has already signed the bill once, and no material alterations were made when it was rushed through the legislature last Wednesday.

After the bill had been signed by the governor, it was discovered that the phrase "and it shall become immediately effective" had been omitted from the emergency clause. This would have prevented the bill becoming law until 90 days after the legislature adjourned. Wednesday morning a new bill, House Bill 950, was rushed through all phases of legislative procedure, and sent to the governor for her signature. This bill carried the phrase previously omitted, but was otherwise unchanged.

Violations of the act are punishable as misdemeanors for the first offense, and as felonies for the second. The first offense carries fines of $500 to $5000 and/or jail sentence for 30 days to one year. The second offense may be punished by a sentence of two to four years in the state penitentiary.

## Deep Production Record Predicted On North Dome

Coalinga, Calif.—Superior Oil Company is expected to set a record for deep production on the North Dome at Kettleman Hills with the completion of Huffman 6 at 9143 feet.

A feature of this completion is the unusual liner assembly. Four separate liners were run to make possible cementing through perforations at four levels. The entire liner section was 7-inch, and included 545 feet which was landed at 9143 feet and cemented through perforations at 8835 feet; 357 feet landed at 8600 feet and cemented through perforations at 8360 feet; 237 feet landed at 8240 feet and cemented through perforations at 8115 feet; and 1040 feet landed at 8007 feet and cemented through perforations at 7533 feet.

The well will produce from about 500 feet of formation which has never been opened in this part of the field.

Two more wells will be started in the northwest sector. Union Oil Company will drill King 4, and Superior Oil Company will start Huffman 5, a location which was made several months ago. This part of the field has produced far ahead of expectations, and has shown very little water.

Development of the southeast section of the North Dome has been slow. Only a few wells have been drilled, and the structure seems to narrow toward the southeast. Associated Oil Company has holdings on Section 2-23-18, and may develop the permit within the year. Other wells may be drilled to determine the producing limits of the field along the northeast plunge.

## Ocean Wildcat May Open New Field Near Elwood

Santa Barbara, Calif.—A successful water shutoff with 9-inch casing at 4063 feet in Doyle Petroleum Corporation's Campbell 191-1, ocean wildcat off Coal Oil Point, has increased the well's chances of opening a new field three miles down the coast from Elwood.

Cement was cleaned out five feet below the shoe of the shutoff string, and the well was swabbed. Oil and gas followed the swab, and a column shot almost to the top of the derrick.

The demonstration does not guarantee a commercial completion, but the pressure was high and a flow of some kind seems assured. The well was drilled to 4082 feet, but more hole will be made before an official production test is made.

Campbell 191-1 checked considerably higher on structure than the first well drilled more than a year ago, but in passing through a fault much of this advantage was lost. The Vaqueros was found at about the same depth as in the original test. The faulted condition may prove valuable to the present well.

Action of the first well during the production test tends to leave some doubt as to the nature of the Vaqueros on all parts of the structure, but an accumulation of oil and gas should be found at some point. Three or four more wells will be drilled if commercial production is developed.

## Kettleman Outpost Plans To Drill to 11,400 Feet

Coalinga, Calif. — North Kettleman Oil and Gas Company is drilling ahead at 10,939 feet in Lillis-Welsh 1, record well northwest of the North Dome at Kettleman Hills, and expects to core and drill to around 11,400 feet before making a production test. A 5⅝-inch hole is being made with three-inch drill pipe in a very hard sand. Weight of the drilling fluid has been increased to 100 pounds, and evidence of a high gas pressure has added to the hope of commercial production at a record depth. No water has been found below the 7-inch shutoff at 9642 feet.

The present formation has been fairly well established as the Eocene. Some evidence of the Vaqueros was found, and reports that drilling is now going ahead in the Temblor appear erroneous. The structure slopes gently toward the northwest, and at some point between the North Dome and Coalinga the Temblor and Eocene should become higher. This fact must be established, as some Eocene production has been developed at Coalinga at a much shallower depth than it was found in the record well.

Importance of Eocene production would be tremendous. This would mean a deeper producing zone on the North Dome which might double the present reserves.

Depth of the formation would discourage intensive development at present.

## Richfield Extension Well Makes 900 Barrels

Los Angeles.—Completion of a 900-barrel well in the northeast extension at Richfield further emphasized the importance of an edge area which has been regarded as a doubtful factor.

Otis Hoyt, independent operator, completed Bertram 15 at 3780 feet with a settled production of 800 barrels of clean oil, and several leases are being sought as the result of such a good producer. The oil was 31 gravity, and much lighter than the average of that produced lower in the field.

The northeast extension has been the center of limited activity for more than a year, and completion several months ago of two good wells was considered significant, but or not enough importance to warrant extensive development. The high gas pressure, quality of the oil and low cost of drilling have attracted several small operators, but major companies believe that the production decline will be rapid from the initial flow. It has been the habit to agitate the wells on the pump, and in this manner to get a larger production than could be obtained by regular pumping methods.

Production is considerably deeper than that in the main part of the field. The extension was regarded by some as a separate anticline, but it undoubtedly is a part of the settled field.

Several leases under consideration call for immediate drilling, but the extension probably will not materially increase field production.

## Drilling Campaign Seen For Mountain View Field

Bakersfield, Calif.—Steady production from Dana Hogan's Wharton 1, discovery well in the Mountain View (Weed Patch) field, has aroused the interest of several companies that had been slow to realize the possibilities of a district which is now producing a light oil with a good gasoline content. The field was not expected to produce oil anywhere near 35 gravity, and a large flow of wet gas was also a surprise.

Superior Oil Company has obtained a lease on 100 acres in Section 32-30-29, and is expected to drill at least one well during the summer. Barnsdall Oil Company has entered the field, and will develop a portion of its holdings at once. Mohawk Oil Company will drill a second well in the field, and will start additional wells if the test now nearing completion produces satisfactorily. Shell Oil Company will drill an offset to the discovery well, and may start still another test on a neighboring lease.

Leases mostly carry cash and royalty clauses, while less liberal drilling clauses are being incorporated than could have been obtained before the field was definitely proved. Several small tracts which appear in line of production have been leased, and

around a dozen wells may be drilled during the early summer months.

The structure shows little surface evidenec of an accumulation, and only drilling will determine the trend of production and size of the field. Geophysical work was employed by Shell Oil Company before the first well was drilled three years ago.

The high gasoline content of the oil, when compared with that of the lower gravity crudes along the east side of the valley, has proved attractive. A large production of this grade of oil is feared, as the small refineries in Kern County would be assured of a good supply of refinable crude. This would make for lower gasoline prices throughout the district.

## 4000-Barrel Well in North Belridge Field

Los Angeles. — The five wells completed during the week were located in four fields, the outstanding well having been completed in the deep zone at North Belridge. Drilling has been divided between a large number of fields, and no area has accounted for a large percentage of completions for more than two years.

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Dominguez— | | |
| Union Oil Co., Hellman 20 | 1000 | 5595 |
| Hellman 21 | 800 | 4810 |
| Long Beach— | | |
| Marine Drilling Co., L. W. F. 1 | 300 | 5150 |
| North Belridge— | | |
| Belridge Oil Co., No. 63-27, 27-27-20 | 4000 | 5402 |
| Ventura Avenue— | | |
| Shell Oil Co., Taylor 74 | 2000 | 7025 |

*Failures; †Junked; ¶Million cu. ft. gas.

## Several New Locations At Huntington Beach

Huntington Beach, Calif.—The wisdom of another drilling campaign at Huntington Beach is being questioned by conservative operators, but several new locations have been made on the strength of recent completions. It seems doubtful that a long run of 3000-barrel wells will be completed around 4400 feet in a zone which has produced for years, but the fact that such a well has been completed is a real stimulant to action.

Macroo Oil Company's Smith 1, completed two weeks ago, has produced up to 4000 barrels of clean oil from 4450 feet. Action of this well has about eliminated the desire to try for deeper zones of unknown value.

# California Expects to See Spurt in Wildcat Work

Los Angeles.—The number of active wildcats in California has not increased sharply since the first of the year, but developments of the past three weeks are expected to start several new wells in at least three districts. A more determined effort to prove structures in several areas has caused additional leasing activity, and in some instances immediate drilling clauses have been inserted.

At Belridge, in Kern County, Casa Mira Oil Company's Theta 1A, Section 29-28-20, is drilling in brown shale at 2245 feet.

At Bena, Caravel Petroleum Corporation's Tejon 1, Section 19-30-30, is drilling in sandy shale at 975 feet.

In the Devil's Den district, Lincoln Drilling Company's Core Hole 1, Section 10-25-18, is coring in shale at 1200 feet. Pyramid Hills Oil Company's Jordan 1, Section 24-25-18, is drilling in shale at 3685 feet.

Near Lost Hills, Associated Oil Company's Williamson 1, Section 2-26-20, is drilling in shale at 3800 feet, and has had little water trouble.

In the McKittrick district, General Petroleum Corporation's Lovitt 1, Section 10-30-21, is rigging rotary for a deep test. Hub Oil Corporation's No. 1, Section 22-29-21, is drilling in brown shale at 5530 feet.

In the Weed Patch area, which is now a proven field, Mohawk Petroleum Company's Hood 1, Section 30-30-29, is flowing by heads from 5660 feet.

### Santa Barbara County

Off Coal Oil Point, Doyle Petroleum Corporation's 1, ocean test, is on production test at 4082 feet after finding the Vaqueros at 4062 feet.

At Goleta, Standard Oil Company's Chase-Bryce 1, Section 20-4-28, is rigging rotary for a deep test.

Near Lompoc, Fairview Oil Company's Beauterbaugh 1, Section 18-7-34, is cleaning out at 1695 feet for deepening.

### Ventura County

At Conejo, American Oil Company's Powell 1, Section 33-2-20, is pumping 20 barrels of heavy oil and some water from 2645 feet.

In Hopper Canyon, Fennel 1, Section 13-4-19, is locating water at 2455 feet.

Near Las Posas, Las Posas Petroleum Corporation's Mahan 1, Section 22-3-20, has been shut down at 4012 feet.

In Hopper Canyon, Hancock Oil Company's Hadley 5, Section 13-4-19, is drilling in hard shale at 1050 feet after coring streaks of oil sand.

Near Ojai, Midlands Oil Company's Canet 1, is drilling in hard gray shale at 6585 feet. R. E. Strinve's No. 4, Section 12-4-22, is a new location.

North of Rincon, Woodrow Petroleum Corporation's Woodrow 1, Section 4-3-24, is making a production test at 7292 feet.

In San Miguelito extension tests, Chanslor-Canfield Midway Oil Company's Hobson A-3, Section 23-3-24, is drilling in hard sand at 3150 feet. Continental Oil Company's Grubb 2, Section 23-3-24, is drilling in shale at 5516 feet. Honolulu Consolidated Oil Corporation's Valenzuela 1, is coring hard shale at 6328 feet.

Near Sespe, H. A. Ivars' Star 7, Section 1-4-20, is drilling in shale at 1875 feet. Merchants Petroleum Company's Cochran 6, Section 1-4-20, will drill ahead after landing 10-inch casing at 829 feet.

At Simi, C. L. Anderson's Marr 12, Section 36-3-18, is drilling in shale at 1235 feet.

On Sulphur Mountain, Wilshire Annex Oil Company's Thompson 1, Section 20-4-21, is standing at 1843 feet with 8⅝-inch casing cemented at 1706 feet.

In Timber Canyon, Petro Well Producing Company's No. 4, Section 18-4-20, is drilling in hard brown shale at 4363 feet.

### Miscellaneous

In Butte County, Section 35-16-1, Buttes Oilfields' Davis 1, is drilling in sticky shale at 1120 feet, and will complete well in lower gas zone.

In Fresno County, Bergman Oil Company's Loma 1, Section 12-12-11, has been shut down at 4032 feet. Dana Hogan's Ladd 1, Section 28-20-16, is rigging rotary. Emerich Oil Company's Mason 1, Section 35-13-13, is drilling in shale at 2500 feet. Graham-Loftus Oil Corporation's Oliver 1, Section 20-15-18, is repairing surface equipment at 5490 feet. North Kettleman Oil and Gas Company's Lillis-Welsh 1, Section 24-21-16, will drill ahead from 10,925 feet.

In King's County, Magee and Stone's No. 2, Section 33-24-22, is drilling in shale at 1028 feet. Kettleman City Oil

and Gas Company's No. 2, Section 10-23-19, is drilling in shale at 1225 feet.

In Tulare County, Dil-Harp Oil Company's No. 1, Section 25-24-26, is drilling in shale at 1325 feet after unsuccessful production test at 1100 feet.

**Southern California**

Near Chatsworth, Marble Investment Company's Deer Lake 1, Section 6-2-16, is cleaning out at 1965 feet.

At Lynwood, William L. Jones' Jones 1, Section 31-2-12, is standing at 4890 feet after hole caved to around 2400 feet.

At Newhall, Hudson Petroleum Company's Alexander 1, Section 1-3-16, is drilling in hard shale at 1515 feet.

At Newport, Nuoil Company's Banning 1, Section 29-6-10, is idle at 3850 feet.

North of Long Beach, Peoples Oil & Gas Company's is partially rigged up.

Near Palms, Palm Ridge Oil Company's No. 1, Section 2-2-15, is drilling in hard shale at 5035 feet.

At Saugus, Willets Petroleum Company's Walker 1, Section 35-5-16, is fishing for 6-inch casing at 1837 feet; total depth 1900 feet.

In the Willmington district, Pacific Oil Investment Company's Lupie 1, Section 28-4-13, is on production test at 3618 feet. Wilmington Terminal Oil Company's Banning 1, Section 28-4-13, is idle at 3640 feet after producing oil on pump.

In Orange County, Saddleback Oil Company's E. B. P. 1, Section 3-6-7, is rigging rotary.

In Riverside County, Harry J. Keeley's Damron 1, Section 21-4-6, is drilling in hard shale at 615 feet. Spindletop Oil Syndicate's Salton 1, Section 25-7-10, is drilling in gray sand at 2775 feet.

In San Bernardino County, A. J. McCarty's No. 1, Section 14-3-6, is rigging small rotary outfit. Great American Petroleum Company's Gapco 1, Section 18-2-8, is drilling in shale at 1938 feet.

In San Diego County, San Felipe Oil Company's Dauner 1, Section 25-11-8, is installing new boilers and additional equipment to deepen from 835 feet.

## Montebello Test Expects Miocene at 6000 Feet

Los Angeles. — Universal Consolidated Oil Company is coring sand and shale at 5678 feet in No. C-1, deep test at Montebello, and oil and gas showings below 5500 feet pointed to entry into the transitional zone, which is supposedly the present formation. Top of the Miocene is expected above 6000 feet. This well is considered a very important deep test in a field which has had little drilling below 5000 feet.

## Commission Asks for New Seminole Potentials

Oklahoma City. — Based on evidence heard on May 17 the Corporation Commission issued on May 23 orders for the gauging of pools of the Seminole district to determine new potentials. The commission found that pools of that district comprise seven common sources of supply namely: Earlsboro Townsite, Earlsboro, South Earlsboro, East Earlsboro, East Earlsboro Extension, Searight, Seminole, East Seminole, West Seminole, Carr City, Mission, Bowlegs, Little River, and East Little River, grouped into one source of supply; and Maud, St. Louis, Asher-Wanette, Konawa, Sasakwa, and Allen, each a common source of supply. The commission further held that all pools listed above should be placed as Class B pools, as has heretofore been the practice.

Potentials are to be of 48-hour duration by leases instead of on the well basis which was determined to be impractical under conditions existing. Gauges obtained during the 48-hour tests are to be divided by two and that figure reported as the lease potential upon which allowable production will be based after August 1, 1933.

Schedule of the potential gauges by pools will be as follows: 7:00 a.m., June 1, Allen and Bowlegs pools; 7:00 a.m., June 4, Asher-Wanette, Carr City, Konawa, and Sasakwa pools; 7:00 a.m., June 7, Earlsboro and Earlsboro Townsite pools; 7:00 a.m., June 10, Little River and Searight pools; 7:00 a.m., June 13, East Earlsboro, East Little River, and East Seminole pools; 7:00 a.m., June 16, South Earlsboro, Maud, Mission and West Seminole pools; 7:00 a.m., June 19, St. Louis pool; and 7:00 a.m., June 22, Seminole pool. The order fails to schedule gauging of the East Earlsboro extension but it is assumed that this pool will be tested along with East Earlsboro on June 13. The Seminole district or Class B pools have not be potentialized as a whole since late in 1931 and new gauges are expected to show a considerable decline, probably 25 per cent or more below the figure reported as of May 1, 1933, by the umpire.

## Gauging Oklahoma City Wells Slow Job

Oklahoma City. — State proration forces were finding the gauging of Simpson Below Wilcox sand wells in the Oklahoma City pool a long tedious process when after 20 days of gauging, new potentials had been obtained on only 240 of the 458 wells producing from that zone. As of 7:00 a. m., May 25, 213 clean wells in the Lower Simpson and 27 wells making water had been gauged and potentials on five Fault Line wells had been obtained. Decline of new potentials appears to range between 40 and 90 per cent and final averages probably will be higher than had been expected.

The state umpire is working in Wilcox sand wells as fast as possible and hopes to completed that zone within a few days. Gauging in this zone was commenced April 17 and most of the wells remaining to be potentialized are those which have cut connections several times.

## Wildcat Planned West Of Garber Pool

Oklahoma City.—The Ramsey interests and Indian Territory Illuminating Oil Company announced location for No. 1, CSW SE Section 32-22n-14w, a rank wildcat test approximately 63 miles due west of the Garber pool, nearest production. This test, which has been rumored for several months, is to be located in an area which is intensely interesting. Deep tests in Harper, Woods, Alfalfa, and Woodward counties, indicate a deep basin in the extreme western portion of the state with beds coming up to the east. Sinclair Oil & Gas Company's Howell 1, SWc SW Section 14-26n-24w, was drilled to a minus total depth of 6286 feet and was still in Mississippi limestone which it had encountered at minus 4663 feet. The same company's Stewart 1, SE NE NW Section 33-27n-16w, 46 miles east and slightly north of the Howell 1, was drilled to a minus total depth of 5513 feet and stopped in the Wilcox sand. The Ramsey and I. T. I. O. test is said to be located on a geophysical "high."

## Second Gusher for New Wentz-Lucien Area

Perry, Oklahoma.—The Wentz-Lucien area of southwestern Noble County received its second gusher completion when Shell Petroleum Corporation et al's Ed. Farr 1, CNE NE Section 19-20n-2w, extended production approximately three-fourths of a mile to the southwest. After producing 1140 barrels in four hours and 40 minutes with 7,500,000 cubic feet of gas at 750 pounds rock pressure, the well was shut in to await pipe line connections. Total depth is 5144 feet in the lower Wilcox sand. This test has commanded more interest than any of the four preceeding completions with the exception of the discovery well.

All tests besides the Ed. Farr 1 have

encountered Viola limestone, and the fact that it failed to find this formation gave it a chance to run considerably higher than other tests in the area. Encountering top of the Upper Wilcox sand at 5000 feet, operators drilled a considerably harder sand than has heretofore been found in the area. Second or Lower Wilcox sand was logged at 5118 feet. At 5122 feet tools were blown up the hole and a bridge formed while the well made a flow of about 190 barrels heading over a period of three hours.

Deepened by stages to its present total depth of 5144 feet, its production continued to increase until it reached approximately 245 barrels per hour. Although this is the figure at which its initial production will be reported the well may do better when fully tested due to the fact that it made some sand during the deepening process.

# Little Is Known of Most Interesting Oklahoma Test

Tulsa. — The industry as a whole knows little or nothing about what is now probably the most interesting wildcat test in Oklahoma.

Denver Producing and Refining Company et al's Noe 1, Section 34-10n-10w, approximately 22 miles north of the Cement pool in Caddo County, was reported May 16 to be drilling below 8530 feet. Whether this is an actual report of the drilling depth or a drill pipe guess is not known, since operators of the test refuse to divulge any information whatsoever.

During the week May 16 the best reports available showed that 135 feet of hole had been made. At present it should be drilling at close to 8700 feet.

From a study of the formation record of Mid-Kansas Oil and Gas Company et al's Preston Culp 6, which went to 10,079 feet and was then the deepest test in the United States, some idea of the stratigraphic position of the Noe 1 may be gained. However, since little is known of the formations in the lower portion of the Anadarko Basin, no accurate guess can be made in the absence of samples of the cuttings. Undoubtedly the test is still in beds of Pennsylvanian age.

In Kay County, Blauner et al's Maple 1, NE NW SE Section 20-27n-4e, was repairing a rig at a total depth of 660 feet.

In Garfield County, Continental Oil Company's Thompson 1, NW SW SW Section 7-24n-4w, was drilling below 5915 feet in lime.

O. M. Mainess' Schildeberg 1, in Pawnee County, NW SW NW Section 27-22n-6e, set 12-inch at 610 feet and was shut down for fuel oil at 1820 feet.

Noble County tests for the extension of the Wentz area were as follows: Sinclair Prairie's Jerome 1, SWC Section 15-20n-2w, set 6¼-inch casing at 5250 feet, having top of the first sand at 5253 feet, total depth 5255 feet, waiting on cement to set. Stanolind and Continental's Bolay 1, CSW NW Section 16-20n-2w, was drilling by frozen pipe at 4530 feet. Shell et al's E. Farr 1, CNE NE Section 19-20n-2w, had Layton at 4180 to 4225 feet, sand at 4415 to 4425 feet, drilling below 4465 feet. Champlin Refining Company's Graves 1, SW NW NE Section 21-20s-2w, lost its hole at 1640 feet and plugged back to 170 feet.

In Logan County, Gypsy Oil Company et al's McConnell 1, CNE SE Section 28-17n-4w, cored sand and shale from 3943 to 3958 feet and was drilling below 4150 feet.

Kemp-Nunnelee's Crane 1, SW SE SW Section 10-17n-6e, was drilling plugs at 480 feet.

Shell Petroleum et al's Faulkner 1, CSE NW Section 11-15n-4w, had a show of oil sand at 4990 to 5063 feet and was drilling below 5212 feet.

A new test appeared in Lincoln County, Magnolia Petroleum Company's Wagner 1, SW SE Section 2-14n-3e, announced as a location.

In Okfuskee County, National Investors' Billy 1-A, SE NW NW Section 29-12n-9e, had dry sand at 3140 to 3152 feet, a show of oil in sand at 3305 to 3322 feet, drilling below 3326 feet.

Two wildcats were reported in Oklahoma County, Mid-Continental's Edwards 1, CSE SE Section 19-11n-1e, a rig, and Roxy Lantz et al's Price, CNE SW Section 19-14n-3w, location.

In Beckham County, Pattee Royalty Company's Goose Tree 1, SW SE SW SE Section 32-10n-23w, was drilling below 225 feet.

McWhirter et al's Vanderneck 1, NE NE NW Section 3-7n-19w, in Kiowa County, was cleaning out at 2035 feet. Christian's James 1, NE SE Section 8-7n-18w, set 5-inch at 1702 feet, total depth shut down.

W. L. Miller's Gardner 1-A, in Caddo County, SE SW Section 26-6n-10w, had sand at 2218 to 2230 feet, at 2258 to 2275 feet, at 2324 to 2327 feet and a showing of oil at 2500 to 2530 feet, drilling below 2989 feet in brown shale.

Reports from Seminole County were as follows: Carter Oil Company's Community-Canard 1, had a small show of oil at 4355 feet, Simpson at 4367 feet, cored from 4396 to 4400 feet getting top of the Wilcox at 4398 feet and recovering two feet of saturated sand, are now standardizing at 4403 feet in Wilcox. Spears Drilling Company et al's Hart 1, NW NE SW Section 18-8n-7e, was drilling below 1735 feet. Felmlee et al's Bowlegs 1, SE NE SW Section 1-7n-7e, was shut down at a total depth of 440 feet. Armstrong et al's Diamond 1, NE SE SW Section 8-6n-7e, was waiting on cement to set.

In Pittsburg County, Moffett and Hall's Jones 1, CNE NW Section 14-8n-14e, was cleaning out at a total depth of 1460 feet.

In Hughes County, Dixie Lee Oil Company's Taylor 1, CE½ NW NW Section 32-5n-10e, was drilling below 125 feet. Nash Redwine's Badger 1-A, CW½ SW SW Section 4-5n-11e, was drilling below 300 feet. Pioneer Petroleum Company et al's Brock 1, SE C Section 26-5n-11e, was a rig.

Pontotoc County tests were as follows: Gilbert et al's Starritt 1, NW NW SE Section 28-4n-6e, drilling below 850 feet with a small show of gas. Williams et al's Kroth 1, NE NE SE Section 33-3n-4e, shut down at a total depth of 1717 feet. Edna Marie Oil Company's McWhirt 1, NE SE Section 11-2n-6e, drilling below 839 feet. W. E. McCraw's Mayhue 1, NE C Section 19-2n-6e, running 10-inch casing at a total depth of 465 feet. W. A. Delaney's Norris 1, SE NW NE Section 25-2n-6e, a location. Brydia et al's Thomas 1, SW NE Section 20-2n-7e, a location. Sledge et al's Wooley 1, SWC Section 22-2n-7e, rigging up standard tools. H. L. Wirrick's Fee 1, SE SW Section 29-2n-7e, shut down at a total depth of 988 feet. Choctaw Oil and Gas Company's Thompson 1, SW NE SW Section 1-1n-7e, was drilling below 755 feet.

In Coal County, Fink & Russell's Miller 1-A, SE SE NE Section 10-2n-8e, was shut down at a total depth of 2835 feet. Dodd & Burton's Grigsby 1-A, NW SE NE Section 35-1n-8e, set 8-inch casing at 1830 feet and was waiting on cement to set.

In Stephens County, Doyle Oil's Cunningham 1, SE NE NW Section 4-1n-6w, had a show of gas in sand at 2044 to 2062 feet and was drilling below 2335 feet in shale. Navajo Oil et al's Martin 1, SE SW NW Section 18-1n-5w, had

top of black shale at 1790 feet, dry sand at 2300 to 2390 feet and was drilling below 2390 feet.

In Murray County, A. E. Heiden's Saddler 1, NE C Section 19-1n-2e, was a rig.

**Southern Oklahoma**

In Marshall County, Abbott et al were drilling below 810 feet on their Simmons 1A, NE SE NE NE Section 14-6s-6e; Thompson et al's Null 1-A, (twin), NE SW SW Section 24-5s-5e, was dry and abandoned in shale at 703 feet; Thomas et al's Setliff 1, SW SE SE SW Section 36-5s-6e, was shut down at a total depth of 1110 feet.

J. D. Wakefield et al's Kelly 1, NW NW SE Section 1-5s-8w, in Jefferson County, was shut down at a total depth of 550 feet. Hobbs et al's Burnett 1, NE SE SW NE Section 32-5s-5w, was drilling in sandy lime at 2050 feet.

In Carter County, P. Turner's Dove 1-A, NE NW SE Section 3-5s-1e, was still a location.

In Tillman County, Emenhiser et al's Pace 1, CSW Section 3-4s-17w, was drilling below 2960 feet. In the same county, Gypsy Oil's Pitcher 1, NWC Section 26-4s-15w, was fishing for cone bit at a total depth of 2760 feet.

L. E. Stewart et al's Stewart 1, in Atoka County, SE C NE Section 2-4s-10e, was shut down at a total depth of 1607 feet.

## New Wells Show Big Slump in Oklahoma

Tulsa.—New work in Oklahoma showed a 33 1/3 per cent decrease below the preceding week when current reports revealed only 14 first reports in nine counties. Probably the most important report of the week came from Lincoln County where Magnolia Petroleum Company was digging pits and cellar for its Wagner 1, SWc SE Section 2-14n-3e, a half-mile east and a half-mile south of Hilton Phillips' Phillips 1, SWc NW Section 2-14n-3e, which was completed as a dry hole at 5080 feet in July, 1932. The Phillips test was reported running structurally high enough to make a well when at 4842 feet tools were lost in the hole along with several stands of rotary drill pipe. Operators were unable to recover tools and finally skidded the rig 50 feet and drilled a new hole. Top of the Simpson formation in the new hole was encountered at 5041 feet and a dolomitic pay streak at 5049 feet put about 1500 feet of oil and water in the hole. Two strings of tools were lost after encountering top of the Simpson and the hole drilled to a total depth of 5080 feet where it filled with water. Unable to shut off water after plugging back first to 4305 feet and later to 4075 feet, operators abandoned the test. Location was on a seismograph "high" approximately two miles northwest of the West Chandler pool. First reports of the week were as follows:

In Creek County, the following first reports were listed: Riverland Oil Company's H. Smith 1, NW SE NE Section 29-15n-9e, a rig; J. B. Steiner et al's Simms 1, NE NW SE Section 1-15n-10e, location; J. W. Cree's Rittenhouse 1, SW NW NW Section 25-18n-8e, drilling below 500 feet; C. L. Sutton et al's Deere 2, SE NE NE Section 7-19n-7e, a rig; Correction: Kendal & Wells' Tahladege 3, NW SE NW Section 10-18n-11e, drilling below 475 feet, formerly reported NW SW NW.

In Hughes County, Funk et al had machine up on their Witty 1, SE SW NW Section 22-7n-8e.

Magnolia Petroleum Company was digging pits on its Wagner 1, in Lincoln County, SWc SE Section 2-14n-3e.

In Muskogee County, Blackwell Oil & Gas Company was spudding on its Crossland 1, NE SW SW Section 18-13n-19e.

In Okmulgee County, W. B. Pine announced the location of his Chamberlain 1-A, NWc NE Section 3-14n-12e. A correction was made on Conrad Lambert's Call 1-A, CSE NW Section 24-16n-14e, drilling below 874 feet, which was formerly reported Lowery 1, in CEL SE SW.

In Osage County, E. O. Platter was spudding his No. 9, NW SW NE Section 30-22n-9e.

Two first reports were listed for Pontotoc County: Boettcher's Magneson 1, SW SE SW Section 6-3n-7e, location and H. & M. Drilling Company's Smith 2-A, NE NW NE Section 29-5n-8e, shut down at a total depth of 550 feet.

In Pottawatomie County, Gypsy Oil Company et al had cellar dug on their Gray 2, NWc SW Section 25-6n-4e; Mid-Continent Petroleum Corporation announced the location of their Brandenburg 1, SWc NE Section 33-7n-4e.

In Tulsa County, Bryan's Clinton 1, SW SW NW Section 26-17n-14e, was spudding.

## Shell to Build Line For Noble County Pool

Tulsa.—Shell Pipe Line Company will commence work at an early date on a six-inch oil pipe line from the new Wentz-Lucien pool in southwestern Noble County to tie in with its double six-inch line from the Cushing district to Tonkawa. The new line will tie in to the old system at Goldsby Station in northern Payne County. Goldsby Station is approximately 26 miles due east of the new pool. So far the pool has had only one connection and that was only temporarily laid to the discovery well.

## Seven Dry Holes Among Oklahoma Completions

Tulsa.—Completion reports from Oklahoma areas show seven dry holes, three dry gas wells, and eight new oil wells with a total initial production of only 661 barrels. While the records for any considerable period of time have not been checked this is thought to be the poorest week reported in several years. So far as big production is concerned Oklahoma now has only the Wentz-Lucien area of southwestern Noble County to which it can look. Completions from 11 counties are listed below:

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Carter County— | | |
| Wirt Franklin, Burton 1, ne sw se 31-1s-2w ..... | * | 2760 |
| Creek County— | | |
| S. W. Swift, J. Bruner 1-A, cel sw sw 3-19n-9e ..... | ¶½ | 1262 |
| Peppis et al, T. Gambler 1, ne se sw 32-19n-9e..... | 35 | 2146 |
| Curtis Oil, Barnett 1, sw se se 18-17n-10e (owdd)..... | * | 2370 |
| E. L. Robinson, K. Saab 2, swc ne 3-18n-8e ..... | 35 | 2542 |
| Leatherock & Bankston, Dasher 1, se ne se 3-19n-9e | 15 | 2205 |
| Hughes County— | | |
| Mid-Continent, J. Bruner 2, se nw se 9-7n-8e .....¶35— | 390 | 2941 |
| Murrah & Bohannon, Jacobs 2, ne se ne 16-7n-8e ..... | 100 | 2930 |
| Jefferson County— | | |
| O. V. Beck, C. & W. Seay 5, ne sw se 34-6s-5w ..... | * | 1760 |
| Okmulgee County— | | |
| J. E. Wallace, Colbert 1-A, se ne ne 15-14n-14e (twin) | 6 | 1788 |
| Pawnee County— | | |
| W. A. Rookstool et al, Wylie 1, nw ne sw 6-20n-5e ..... | ¶1 | 1951 |
| Payne County— | | |
| Hall et al, J. Morgan 1, swc nw 28-19n-5e ..... | * | 3861 |
| Pontotoc County— | | |
| Boettcher, Huber 1-A, ne sw nw 7-3n-7e ..... | * | 1084 |
| Seminole County— | | |
| Payne Drlg. et al, Bruner 1, sw se sw 29-10n-6e ..... | 15 | 3445 |
| Tulsa County— | | |
| A. B. Ice, Johnston 4, cwl sw se 15-16n-12e ..... | * | 2485 |
| Cummings, Bruner 5, nw sw nw 27-17n-13e ..... | 65 | 2005 |
| C. R. Fortner et al, Partridge 1, se c sw 32-19n-11e..... | ¶3 | 1594 |
| Wagoner County— | | |
| Aggis Drlg., Davis 1-A, se c 17-16n-15e ..... | * | 1483 |

*Failures; †Junked; ¶Million cu. ft. gas.

# Kansas Wildcatting Reacting To Low Price; Few New Wells

Wichita, Kansas. — Current reports from Kansas areas show one location, two rigs, 10 drilling, fishing or rigging up, and eight shut down operations in the active wildcat classification. Undoubtedly wildcat efforts will be reduced as long as the price of oil remains at its present level despite the fact that general conditions within the state appear to warrant considerable exploratory work. Detailed reports of the week were as follows:

In Sumner County, Deal Oil and Gas Company's Tompkins 1, SWC Section 26-33s-1e, was fishing at a total depth of 3690 feet.

E. Yarnell et al's Spear 1-A, SE NE NE Section 31-33s-6e, in Cowley County, was a machine.

In Elk County, Austen et al's Wade 1, CNE NE Section 9-29s-12e, was shut down at 1680 feet.

Ninnescah Oil & Gas Company's Hardesty 1, in Pratt County, SW SE SE Section 28-27s-11w, set 5-inch at 4047 feet and was drilling below 4086 feet.

In Greenwood County, Chas. Reser's Hull 1, NW SE Section 8-26s-9e, was drilling below 1650 feet. Kite et al's Butler 1, SW NE Section 15-26s-11e, was spudded and shut down. Knight et al's Moser 1, NE SW SW Section 33-22s-12e, set 8-inch at 1484 feet and was drilling below 1780 feet.

Carter Oil Company's Rowley 1, in Sedgwick County, CE½ NE NE Section 30-25s-2e, was underreaming 6-inch casing, total depth 3267 feet.

In Woodson County, Ward McGinnis's Ross 1, NW SE Section 32-25s-14e, was a location.

Roth and Faurot's Yoder 1, 30 feet north CNW NW Section 15-24s-5w, in Reno County, was shut down after repairing skidded rig.

In Stafford County, Atlantic Oil's Gates 1, NW SE Section 27-21s-13w, swabbed 176 barrels of oil in 18¾ hours at a total depth of 3704 feet, now shut down for tankage.

In Rice County, Joe Liggett's Thodel 1, CNW NW Section 11-21s-7w, was rigging up after having spudded and shut down since February of 1932. In the same county, Vickers Petroleum et al's Specht 1, SE NE Section 20-20s-10w, was drilling below 400 feet. Langston et al's Wells 1, NE SE Section 4-20s-9w, shut down at total depth of 1750 feet.

In McPherson County, Eisenhauer et al's Kaufman 1, NE SW SE Section 24-20s-3w, spudded and shut down. Sever and Hessman's Schrag 1, SW SE Section 32-19s-4w, had rig on ground. Roth and Faurot's Swanson 1, NE SW NE Section 13-19s-3w, had a show of water at 1445 feet, a show of water at 1775 feet, underreaming 10-inch casing, total depth 1800 feet. Darby Petroleum Company's Brucker 1, NE NW NE Section 24-19s-1w, 8-inch at 3048 feet, Base Mississippi lime at 3138 feet, drilling below 3325 feet.

In Barton County, Ranken et al's Sooey 1, CSW NE Section 34-18s-12w, had a show of water at 2970-2975 feet, drilling below 3150 feet.

Lario Oil and Gas Company's Fulton 1, in Saline County, SW SW NW Section 14-16s-2w, was shut down at a total depth of 2900 feet.

In Graham County, Schleimeyer et al's Smith 1, SE C Section 24-8s-25w, was shut down at a total depth of 4180 feet.

## Only Four New Wells Started in Kansas

Wichita, Kansas.—Four first reports and one correction note represented new work during the past week in Kansas when three starts were made in eastern counties and one in the western portion of the state. While development in the western portion of the state for the past several years has greatly exceeded that of the eastern portion, in recent months the shoe string trends of Greenwood and Butler Counties has proven attractive especially to the independents. Wells can be completed in this area at comparatively small costs and very little difficulty seems to be experienced in securing connections. For these reasons the eastern portion of the state probably will continue to hold its own for some time. First reports were as follows:

In Barton County, Hilligoss et al's Isern 2-B, SW NE NE Section 12-20s-11w, was drilling below 250 feet. This well was formerly reported No. 3 Isern.

In Coffey County, Ackman et al were spudding on their No. 2, SW NW SW Section 14-22s-13e.

Anderson et al were rigging up their Smith 1, in Elk County, to drill deeper from 1545 feet, CNW SW Section 22-29s-9e.

In Greenwood County, Loy's Patterson 1, NE NW NW Section 36-23s-11e, spudding.

Sinclair Prairie Oil Company announced the location of their Neufeldt 2, in Harvey County, SE C NE Section 18-22s-3w.

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Wichita, Kansas.—Under the influence of several nice wells in the Hollow-Nikkel area of western Harvey County, total initial production jumped during the past week to 9312 barrels as compared to 609½ barrels during the preceding week. Odd shaped tracts in the Harvey County area are responsible for much of the activity at this time. Reports from four counties were as follows:

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Harvey County— | | |
| Shell Pet., Schmidt 1, sec ne 5-22s-3w | 576 | 3537 |
| Shell Pet., Nikkel 1, nw se sw 8-22s-3w | 972 | 3208 |
| Shell Pet., Schmidt 1, ne nw sw 17-22s-3w | 1150 | 3474 |
| Shell Pet., Schmidt 2, nw nw sw 17-22s-3w | 2147 | 3450 |
| Skelly-Selby, Smith 1, swc nw 17-22s-3w | 2140 | 3455 |
| Frost Drlg., Martens 3, ne se se 19-22s-3w | 370 | 3479 |
| Sinclair Prairie, Ediger 1, nec sw 19-22s-3w | 720 | 3424 |
| Skelly Oil, Martens 2, se se se 19-22s-3w | 1232 | 3484 |
| McPherson County— | | |
| Reid et al, Kiefer 1, nw sw ne 21-19s-1w (owdd) | * | 3475 |
| Perry et al, Blair 1, se c nw 32-19s-1w | lcn. | abd. |
| Wolf Creek Oil, Krehbiels 5, nw ne nw 25-19s-2w | lcn. | abd. |
| Palmer-Shell, Ritz 3, sw ne nw 7-20s-1w | lcn. | abd. |
| Gaume-Maxwell, Goering 1, ne se sw 24-21s-3w | lcn. | abd. |
| Rice County— | | |
| Dougless-Youker, Townlot 1, se ne ne 31-19s-9w | * | 3337 |
| Woodson County— | | |
| Sheedy et al, Eades 1, ne c se 24-25s-13e | 5 | 1515 |

*Failures; †Junked; ¶Million cu. ft. gas.

## Higher Prices Paid For Indian Leases

Muskogee, Okla. — Thirty-eight of a total of 79 tracts of restricted Indian lands offered for lease by the Five Civilized Tribes on Wednesday, May 24, were purchased for $6,768.07, or an average of $2.35 per acre. The 38 tracts comprise 2,876.57 acres of the total of 6,512.43 acres offered. The average price per acre and the percentage of acreage sold are higher than the figures reported during recent sales.

# Only Average Run of New Wells for East Texas District

Tyler, Texas.—Completion of 22 oil producers in the East Texas field during the past week affords an average of about three new wells daily, or about equal to the rate maintained for the past six weeks. A number of small producers appeared among this new crop of completions due to their location being on the edge of the structure.

Sun Oil Company's Hodnett & Melton 4, located on 176½-acre lease in the southeastern part of Smith County and on the west edge of the Joiner area, barely made a commercial well on account of bottom hole water, and had to be pumped for an initial gauge. This outpost took in about 1½ feet of sand in drilling to 3703½ feet, or 3315½ feet, with salt water appearing when the hole was cleaned. It pumped 15 barrels fluid hourly, including 85 per cent water.

Humble Oil & Refining Company contributed two small wells in drilling near the east edge of the structure. This company's Maggie Watkins 1, located in northwest corner of 119-6-acre lease, Andrew Miller Survey, Rusk County, gauged 15 barrels oil per hour via open tubing after drilling through broken sand pay to 3700 feet. In Gregg County, the company's H. Castleberry 5, B. N. Hampton Survey, also proved to be a small well in flowing by heads from sand at 3456-90 feet, with the hole bottomed in Georgetown lime at 3514 feet.

Detailed list of completions follow:

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Joiner Area— | | |
| Humble O. & R. Co., Maggie Watkins (119.6-ac) 1 | 750 | 3700 |
| Hunt Production Co., Joe Lee (42-ac) 3 | 6000 | 3747 |
| Mid-Kansas O. & G. Co., M. Kangerga 5, Acct. 2 | 5500 | 3650 |
| Sun Oil Co., W. H. Hodnett-J. W. Melton (176½-ac) 4 | 55 | 3703 |
| Kilgore Area— | | |
| Chicago Oil Co. (Great Eastern), C. O. Christian 2 | 9600 | 3746 |
| Geo. W. Foster et al, Sam Carr 1-E | 8500 | 3485 |
| Gulf Prod. Co., S. G. Andrews (60-ac) 5 | 6000 | 3592 |
| Humble O. & R. Co., J. N. Peterson (222-ac) 16 | 9000 | 3683 |
| H. Sexton (84-ac) 7-C | 9600 | 3738 |
| Westheimer & Daube, W. P. Brightwell (22-ac) 4 | 8500 | 3606 |
| Longview Area— | | |
| Atlantic Oil Prod. Co., Allen Tooke (40-ac) 4-B | 10,500 | 3628 |
| Bonds & Dillard Drlg. Co., D. M. Myers (41-ac) 5 | 9500 | 3575 |
| P. R. Bonds et al, C. Fisher (1.69-ac) 1 | 4000 | 3493 |
| California Pet. Corp., C. Jones (40-ac) 5 | 7200 | 3669 |
| Louis Godlin et al, W. W. Owens (330-ac) 1 | 3500 | 3661 |
| Gulf Prod. Co., S. C. Fishburn (200-ac) 12 | 8000 | 3505 |
| Humble O. & R. Co., H. Castleberry (244-ac) 5 | 500 | 3514 |
| W. R. Jones et al P. Doby (22-ac) 3 | 6500 | 3742 |
| Prince Bros. et al, H. M. Williams (37-ac) 5 | 10,000 | 3619 |
| B. H. Rogers & Bros., E. H. Brawley (56-ac) 4 | 8500 | 3660 |
| St. Jude et al, Sampere 1 | 9000 | 3574 |
| B. F. Phillips et al, Carrie Brooks (18.07-ac) 1 | 1500 | 3615 |
| Hopkins County— | | |
| Burgess & Simpson et al, Mt. Vernon Natl Bank 1 | † | 2470 |
| Upshur County— | | |
| C. H. Lyons, Taubel et al, W. M. Shettlesworth 2 | 100 | 3723 |
| Van Zandt— | | |
| Orbit Oil Co., Moore Grovery Co. 1 | * | 1420 |
| Wood County— | | |
| Hull-Sharp & W. B. Saulsbury, T. H. Peterson 1 | * | 3483 |

*Failures; †Junked; ¶Million cu. ft. gas.

## East Texas Allowable Now 826,900 Barrels

Kilgore, Texas.—Revised proration schedule covering the East Texas field effective 7 a.m. May 17 issued in printed form by the Texas Railroad Commission, places the allowable for the field at 826,900 barrels daily, or approximately 82½ barrels daily per well. This rate of output is to continue for an indefinite period, according to official statement made by the commission May 16, although the outcome of Federal Court injunction suits on trial at Fort Worth late last week will have some direct bearing on the term of duration of the high field allowable. These suits challenge the validity of the current proration order.

Increases ranging up to 3000 barrels

# Pumping Equipment Sales Swamps Manufacturers

Tyler, Texas.—Purchase of pumping equipment for duty in the East Texas field by all classes of operators has attained a volume that forces dealers and manufacturers to inaugurate a policy of making daily inventory of orders on hand before committing themselves to specific delivery dates on new business. Steel derricks for pumping wells, as reported last week, are particularly scarce, and it is reported that manufacturers are booked ahead on orders aggregating about 700 derricks.

Probably the largest single pumping equipment item purchased last week was the placing of an order for 1,250,000 feet of sucker rods by Magnolia Petroleum Company. The order calls for 1,000,000 feet of rods of three-quarter-inch diameter, while the remainder is to be of the five-eighths-inch size. This purchaser has 470 completed wells, and is drilling additional tests on proven locations in trying to keep up with offsets.

Every important property owner in the East Texas field has all available engineers at work preparing an outline on pumping equipment requirements. One major unit is credited with having assembled engineers from all sections of the Mid-Continent and West Coast for a conference on type of pumping equipment to purchase for duty in East Texas, and will place orders shortly for the bulk of its wells should the Texas Railroad Commission show signs of continuing its high production allowable in the field, where reservoir pressure is being dissipated at average rate of about 4½ pounds per 1,000,000 barrels of oil withdrawal, or in reality each day.

Question of financing the installation of pumping equipment is a major issue with nearly all operators and companies, as crude prices have been abnormally low since April 24, starting date of the 1,000,000 barrel daily output of the East Texas field. This unexpected decrease in revenue and premature arrival of the pumping stage on many properties slipped up on the large and small operating units alike.

daily were scored by some of the larger operating companies in the field as result of the commission having revised its production distribution schedule that was in effect April 24 to May 17. Losses in allowable were also sustained by some companies and individual operators under the new schedule. The revision was made to correct errors that appeared in the previous schedule, which was hurriedly prepared on the eve of the adoption of the well potential plan of allocating production, with all flowing wells permitted to produce 15 per cent of their rated hourly potential. Marginal wells command a minimum ouput of 40 barrels daily, while the largest producers have a top allowable of 160 barrels daily.

## Construction Started on New East Texas Refinery

Tyler, Texas. — Construction work has been started by J. H. Edwards, H. H. Coffield, Geo. P. Mann and associates on a 2500 barrel daily capacity crude refinery on a site about one mile northeast of Overton and on the west edge of the East Texas oil field. The plant will be identified as the Rusk Gasoline Company, with a capital stock of $50,000. Rusk Refining Company, owned by the above group, recently completed sale of its 2500 barrel capacity plant, erected at Overton about two years ago, to Oil Refineries, Inc.

Dutch Rose Refining Company began operating its 200 barrel daily capacity skimming plant near Gladewater May 17, having experienced some delay in completing the plant. Frank Traywick is the principal owner and in charge of operatoins.

Construction work is in progress on the Gilmer Oil & Refining Company's 150 barrel daily capacity skimming plant, located at Gilmer, Texas, near the East Texas field. B. L. Lee, Gilmer lumberman, Chester Lee and Crawford Taff are the principal owners of the company.

## Annual Picnic Held By Sun Oil Company

Dallas, Texas. — Sun Oil Company staged its fifteenth annual picnic at a local park on May 24 for employes attached to Dallas operating offices, and many employes from the East Texas oil field were also permitted to come in for the outing. J. Edgar Pew, vice president, Philadelphia, lived up to his reputation of never missing this annual affair.

# Two Woodbine Wildcat Tests Will Be Started Soon

Tyler, Texas.—Two or more wildcat tests are obligated to be started within a few months on blocks assembled by majors and independents centering on the southwest part of Anderson County, northeastern Leon County and southeastern Freestone County.

The Woodbine sand horizon is to be the goal of the projected tests, and the activity is predicated on the favorable oil showing and sand body encountered late last year by a unitized test drilled to the 6300-foot level on the Buffalo structure, about seven miles northwest of Centerville, Leon County. Although it failed to yield oil in commercial quantities this Buffalo structure wildcat proved that the Woodbine sand offers production possibilities in the area.

Lease buying activity has been conducted mostly by Humble Oil & Refining Company, Gulf Production Company, Shell Petroleum Corporation, Pete N. Wiggins, J. B. Daniels, Jim Patton, Byrd & Frost, Incorporated, and McElreath & Suggett Oil Corporation. Purchases by some of these independents have been for major companies taking protection under cover. Prices range from $1 to $3 per acre.

Buffalo structure test was drilled by Shell Petroleum Corporation and other unit members, and plugged about March 1. Due to the approaching expiration of a number of leases within the original unit block the prompt drilling of a second test, probably to the northeast, has been urged by unit members. Additional acreage has since been purchased at prices ranging up to $50 per acre, thereby necessitating the creation of a new unit plan of development, with Shell Petroleum Corporation in charge. Drafting of this unit agreement is underway, and it is expected to be circulated for signatures immediately.

Drilling of another deep wildcat in the Athens area, Henderson County, is slated to take place shortly as result of the American-Liberty Oil Company having farmed out its 2500-acre block to Wm. C. McGlothlin and LaRue Brothers. Shows of oil in Woodbine appeared in several previous tests drilled in the immediate area.

Higher potential rating has been earned by the wildcat oil producer scored in the Jamestown area, southeastern Upshur County, on May 15 by C. H. Taubel, Philadelphia, Pennsylvania, Charlton H. Lyons, Shreveport, and J. K. Wadley of Texarkana in the northwest corner of the W. M. Shettlesworth 100-acre tract, Jas. M. Dunn survey, after swabbing the hole clean. It is rated by its owners at 15 barrels pipe line oil hourly, based on initial gauge, swabbing and flowing, and on the following day flowed at rate of 120 barrels daily. It is producing from about one foot of sand, identified as the Woodbine series, with the hole bottomed at 3724 feet. It has a sub sea depth of 3431 feet. The oil is dark in color, and tests 38° gravity at 78° temperature.

This successful completion is about four miles north of nearest production, but partially cut off from same by dry holes, indicating a separate producing structure. However, both areas developed oil production from the Woodbine section about 100 feet lower sub sea than the East Texas field to the south. The Shettlesworth producer cemented 5 3/16-inch casing at 3721 feet in cap rock. A thin sand above this cap rock formation is believed to carry salt water in the area, although the discovery well is now free of water.

The owners of the Shettlesworth producer, acting individually and collectively in association with J. P. Evans, Shreveport operator, had drilled four tests to the Woodbine without scoring commercial production in the Jamestown sector within the past eight months. Plans are to go forward with additional drilling activity, and the next test will be a short distance to the east on the J. Frank Smith 130-acres, Joel Holbert survey. The latter was turned by the Sun Oil Company for an oil payment, and immediate drilling obligation.

The status of other East Texas wildcats follow:

In Cass County, T. H. Pardoe et al's S. A. Orr 1 on 316-acre tract, G. W. Morris Survey, is standing at 2160 feet.

In Cherokee County, T. C. Cardwell et al's W. C. Wallace (155-acres) 1, C. Burnett Survey, is shut down in shale at 2910 feet, elevation 355 feet.

E. F. Melton, Trustee's (was Saranac Oil Co.) P. E. Jones (132-acres) 1, J. D. Hamilton Survey, elevation 399 feet, shut down in Pecan chalk at 3605 feet.

Hopkins County test of Burgess-Simpson & Ideal Oil & Royalty Company on Mt. Vernon National Bank Fee 1, M.E.

&P. Ry. Survey, dry and abandoned 2470 feet. Culbertson Brothers and Mike Lynch's Louis Stribling 1, on 25-acres, Thos. Morris Survey, materials. Dilworth Hager and B. H. Ashby's R. A. Logan (175-acres) 1, A. O. Wetmore, Survey, rig.

In Hunt County, Solar Exploration Company's Mrs. E. Smith 1, Wm. Glass Survey, is drilling below 850 feet.

In Kaufman County, Elzey, Bentley & Brewer's J. B. Hunter 1, R. Sowell Survey, cored dry sandy shale 1050-1054 feet and shut down.

In Limestone County, C. C. Curtis and J. E. Winans et al's Emma Daniels 1, on 41½ acres, Pedro Varella Survey, shut down 360 feet. C. M. Joiner Petroleum Corporation and Miller Drilling Company's W. Stephenson 1, Geo. Gentry Survey, topped Austin chalk 3050 feet, drilling lime 3385 feet. V. V. Waite-C. H. Kadane and A. J. Riddle's B. B. Barron (640-acres) 2, E. Mabry Survey, logged Austin chalk 2390-2805 feet, with elevation of 465 feet, showed gas in Woodbine sand 3049-3212 feet, logged Edwards lime 3724-3821 feet, drilling 3910 feet.

In Morris County, Buchanan, Burkhalter et al's Staggers 1, J. D. Nelson Survey, running sand pump 3713 feet. Dr. Beeler et al's H. C. McCullum 1, on 20-acre tract, S. A. Loving Survey, rig. Tunnell, Stewart, Cole et al's (was Grover Hart) Walcott-Lott 1, D. A. Russell Survey, shut down in chalk 2635 feet.

In Rusk County, John Keegans et al's R. L. Needham 1-A, J. H. Chambers Survey, elevation 356 feet, shut down 1530 feet; Strong 1, rig. Walker & Murray's Arnold 1, Levi Sparks Survey, top Pecan chalk 2606 feet, fishing 2760 feet.

The Smith County test of H. B. Lambert, E. R. Mount et al on the O. G. Funderburgh 63-acre tract, Victor Loupy Survey, fishing 2380 feet. R. L. Martin et al's (was Thayer & Mattocks) W. P. Rushing 1 on 50-acres, J. Herrin Survey, logged Pecan chalk 3150-3563 feet, with elevation of 413 feet, standing 3650 feet.

In Titus County, Garland Hallett et al's W. W. Jackson 1, J. E. Hopkins Survey, is a derrick.

In Upshur County, Newsom & Orr's D. J. Smith 1, J. R. Davis Survey, topped Pecan chalk at 2345 feet, with elevation of 310 feet, temporarily abandoned 2680 feet. Taubel & C. H. Lyons et al's W. M. Shettlesworth (100-acres) 2, J. M. Dunn Survey, logged hard Pecan chalk 2459-2945 feet, with elevation of 292 feet, Austin chalk at 3567-3700 feet, Woodbine sand 3722-3724 feet, rated good for 100 barrels oil daily. J. K. Wadley, Lyons et al's J. Frank Smith-Sun (130-acres) 1, Joel Holbert Survey, materials.

In Van Zandt County, C. P. Cole et al's Gentry 1, shut down after coring broken sand 1315-1330 feet. A. J. Delcambre et al's A. Crim (48-acres) 1, standing 1110 feet. C. A. Everts Drilling Company's J. J. Goode (108-acres) 1, David Rose Survey, drilling 2063 feet. Golf Oil Company's S. R. Stone (93.2-acres) 1, H. Myers Survey, A-589, standing 1440 feet. Guy Manning and W. H. Carlin's Howell-Owens (37-acres) 1, Wm. H. Bunch Survey, shut down 1000 feet. Orbit Oil Company's (was John W. Naylor & Rowland) Moore-Humble 1, Wm. Daniels Survey, dry and abandoned 1420 feet. Petroleum P. L. & Storage Company's S. S. McGee-Humble (972-acres) 2, Wm. Daniels Survey, cemented casing above broken oil saturated sand 1230-65 feet. Reasonover Brothers et al's D. F. Cade (45-acres) 1, testing Nacatoch sand 1191-1220 feet, cemented casing above broken oil saturated sand 1177-1217 feet.

In Wood County, Hull & W. B. Saulsbury's T. H. Peterson (320-acres) 1, W. B. McNutt Survey, elevation 421 feet, dry and abandoned in shale and boulders 3483 feet.

# Deep Test at Big Lake Makes 8000 Barrels at 8695 Feet

San Angelo, Texas.—Low structural position of Group One Oil Corporation (Continental Oil Company's) University 8-B, a south extension well in the Big Lake field's Ordovician lime horizon, did not hinder it from earning an initial rating of 8000 barrels daily when tested May 23 in the dolomite zone at 8625-8695 feet. It is about one-quarter mile south by east of University 3-B, and about 166 feet lower on the top of the dolomite as compared to the latter.

University 8-B produced 6011 barrels of 43.4° gravity oil during the first 18-hour gauge, with gas rated at 11 million cubic feet daily. The oil is of premium quality because of the low gravity, indicating that it is from the lower pay zone, source of a lube stock material that rates on a par with the best grades of Pennsylvania products.

This new well topped the basal Pennsylvanian limestone at 8440 feet; first Simpson at 8570 feet; and first dolomite at 8625 feet, with surface elevation of 2753.71 feet.

In contrast to the spectacular showing made by the outpost well, Group One Oil Corporation's University 7-B, located a short distance northeast of the discovery well of the deep zone, was showing salt water and only a trace of oil when flushed with a high pressure gas flow at a depth of 8550 feet. The area immediately surrounding this well has been subjected to heavy oil and gas drainage (about 18 million barrels of high gravity oil—since the discovery of the Ordovician horizon December 1, 1928) and a high percentage of salt water has appeared in the older wells.

Big Lake Oil Company's University 9-C, northwest outpost producer for the deep zone, has been gradually deepening since its original completion several weeks ago and established a new peak flow of 7271 barrels of 55° gravity oil and 40,000,000 cubic feet gas daily at 8647 feet, with 1100 pounds back pressure on the casing. This back pressure was increased to 1750 pounds, causing the oil flow to drop to 1178 barrels oil and 8,323,000 cubic feet gas daily.

## Yates Hearing Set for June 6 at Austin

Austin, Texas.—A hearing on the Yates field will be held in Austin, June 6, to consider the petition of the Mid-Kansas Oil & Gas Company for an increase in the allowable.

The petition sets out that the allowable in the field, which is 60,450 barrels per day at the present time, has varied from 130,000 downward to the present figure.

The Mid-Kansas alleges that since the allowable has been reduced below 65,000 barrels per day, total reservoir displacement has increased 600 barrels (oil and gas) per day, although the allowable production is 4500 barrels less than formerly.

They set out that the most efficient production takes place when the allowable is 70,000 or 75,000 barrels per day.

The petitioner requests an increase of 9550 barrels per day, or a 70,000-barrel allowable for the field

The Mid-Kansas Company points out that they will produce approximately one-half of this increased production, and that they were willing to purchase the entire amount.

They contend that this proposed increase will improve physical conditions in the field, and there is a market demand for the additional production, and their request should be granted.

## Gas Reservoir Found in Western Foard County

Wichita Falls, Texas.—Discovery of a third prolific gas producing horizon in the western Foard County wildcat test of The Texas Company on the Les K. Johnson ranch greatly enhances the value of this area as a potential gas supply source for the North Texas district.

The new strike was made from sand horizon at 3419-31 feet rated at more than 20 million cubic feet daily, based on estimates made when the well blew out for a brief period.

The well has been killed to lower 6⅝-inch casing swung in hole at 3395 feet. Plans are to deepen to try for an oil producer in the lower section of the horizon, which has been definitely correlated as being identical with the so-called Swastika and Gose sands in Archer County.

This gasser tested 30 million cubic feet of dry gas, registering 1050 pounds pressure, from sand at 3088-3110 feet last November. A string of 8½-inch pipe was cemented at 3123 feet, but had a flow of 43 million cubic feet of gas when the hole was deepened four feet below this casing point.

Appearance of salt water in F. W. Brodie et al's W. E. Hunt 1, semi-wildcat in northwest Jack County, has resulted in the plugging off sand logged between 511-515 feet. It is rated good for 10 barrels daily on pump, and probably establishes a new pool since it is about 2000 feet south and cut off by dry holes from Root Drilling Company's one well pool on the Coleman-Leach tract, Section 1, S. P. Ry. Survey, Abstract 578.

The North Texas district yielded 12 completions during the past week, including seven dry holes and five producers, making a combined initial output of 222 barrels daily.

Detailed list of completions follows:

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Archer County— | | |
| Gross & Reed, Archer County 1 | * | 1291 |
| W. B. Hamilton et al, C. E. Graham 1 | * | 3341 |
| W. B. Omohundro et al, J. H. Turbeville 5-A | 140 | 1479 |
| Shappel Oil Co., Portwood 5 | 35 | 1368 |
| Clay County— | | |
| A. C. Smith et al, Schumake 2 | * | 1409 |
| Denton County— | | |
| Freeman Bros. et al, Freeman 1 | * | 3507 |
| Jack County— | | |
| Brazos River Oil & Gas Co., Clayton 5 | 20 | 2950 |
| Wilbarger County— | | |
| Sheldon & Martin, Wheeler 1 | 15 | 1346 |
| Young County— | | |
| Rhea Anderson et al, Kunkel 1, Sec. 174 | * | 1202 |
| W. L. Deininger et al, Stewart 1, Sec. 1 | 12 | 517 |
| Helena Oil & Gas Co., Grigsby 1, Sec. 415 | * | 703 |
| Wooten & Reed, Hinson 6, Sec. 1448 | * | 851 |

*Failures; †Junked; ¶Million cu. ft. gas.

## Lone West Texas Well Yields 75 Barrels

San Angelo, Texas.—Completions credited to the West Texas district last week included five dry holes, and one oil producer. Except for the trio of wells contributed by Ward County, the completions were on wildcat locations.

A detailed list of completions for week follow:

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Crockett County— | | |
| Superior Oil Co. (Cal.) Robt. Massie 1 | * | 1431 |
| Irion County— | | |
| Perry Fox et al, W. C. Lawhon 1 | * | 560 |
| Reagan County— | | |
| E. B. Lawson & Wahlenmaier Pet. Corp., D. E. Hughes 1 | * | 3021 |
| Ward County— | | |
| Atlantic Oil Prod. Co., University 1-A | * | 2720 |
| Gulf Prod. Co., G. W. O'Brien 27 | 75 | 3367 |
| Stanolind O. & G. Co., S. H. Whitlock 1 | * | 2512 |

*Failures; †Junked; ¶Million cu. ft. gas.

# Texas to Have Fewer Wells This Year With Less Initial Flow

Austin, Texas. — Wells drilled in Texas during 1933 will fall materially below the number driled in 1932.

Initial production added in Texas during 1933 also will be far less than that obtained in 1932.

These predictions are clearly indicated by the trend in drilling permits. Permits issued this week totaled 120, bringing the state's total for the year up to 2206, a decrease of 1141 from the 3355 permits issued during the corresponding period of 1932. The year has progressed far enough to render safe the prediction that nothing which could happen at this time would be able to precipitate, during the remaining six months, a campaign which would equal that prevalent in East Texas during 1932. Market conditions, if nothing else, would render it impossible.

As to the amount of flush oil to be expected, the bulk of it came from large calibre East Texas wells in 1932. That area is completing less than one fifth as many wells as it was in some months of 1932. A million barrels of flush oil per week was nothing unusual for the area in 1932. Now it does good to furnish 200,000 barrels per week. Hence, it is reasonable that the flush oil contributed during 1933 will be even less, proportionately, than the decrease in completions seem to indicate.

For nearly a year, Gregg, Montgomery and Rusk Counties have led in applications for permits. They continue to do so, calling for 58 out of the state's total this week.

In Bexar County, J. F. Harrison, San Antonio, was granted a permit to drill F. Gembler 1, (88-ac), 150 feet from the northwest and 460 feet from the northeast line of the J. Montez Survey.

In Brown County, The Texas Company, Cisco was granted a permit to drill F. Lowe 88, (320-ac), 2680 feet from west and 350 feet from north line of No. 622 G. Stubblefield survey.

In Brazoria County, E. A. Anderson, Houston, was granted a permit to drill J. W. Reynolds 1, (1221-ac), 850 feet from south and 5502 feet from east line of Johnson-Walker survey.

In Caldwell County, Detroit Texas Development Company, Luling, was granted a permit to drill L. Rogers 1, (35-ac), 900 feet from north and 400 feet from east line of A. Floyd survey.

In Callahan County, Hayek Oil Company, Fort Worth, was granted a permit to drill E. L. Finley 1A, (80-ac), 800 feet from east and 400 feet from south line of Section 10, D&D Asylum survey.

In Carson County, United Crude Oil Corporation, Amarillo, was granted a permit to drill E. Cooper 3, (160-ac), 330 feet from north and east lines of SE¼ of Section 5, Block 9, I&GN survey.

In Colorado County, J. W. McColloch, Tyler, was granted a permit to drill B. Kansteiner 1, (243-ac), 300 feet from north and east lines of L. Beason survey.

In Duval County, M. J. Coffey, San Antonio, was granted a permit to drill A. Parr 1, (4100-ac), 207 feet from south and 2008 feet from east line of

Section 26, E. H. Valentine survey. Magnolia Petroleum Company, Dallas, was granted a permit to drill M. Ruiz 3, (160-ac), 330 feet from northeast and northwest lines of Section 574, BS&F survey.

In Eastland County, Outlaw & Champion, Ranger, were granted a permit to drill J. R. Higgins 1, (148-ac), 450 feet from east and 1250 feet from south line of Section 37, McL. CSL survey.

In Fort Bend County, Gulf Production Company, Houston, was granted a permit to drill F. Gubbels 5, (100-ac), 353 feet from north and 365 feet from east line of S. Kennedy survey. Edwards-Riggins 3, (57-ac), 316 feet from west and 1302 feet from south line of S. Kennedy survey. C. E. Musslewhite, Houston, was granted a permit to drill H. R. Farmer 1, (100-ac), 350 feet from east and 150 feet from south line of Jas. Scott survey.

In Franklin County, F. D. Prince, Corsicana, was granted a permit to drill E. L. Phillips 1, (117-ac), 300 feet from north and east lines of No. 760 Wm. Birdwell survey.

In Gregg County, New Process Production Company, Dallas, was granted a permit to drill Geo. Anderson 5, (8½-ac), 541 feet west of center of east line of P. McAnally survey. Tysco Oil Company, Dallas, was granted a permit to drill Geo. Anderson 4, (11-ac), 150 feet from north and east lines of C. H. Alexander survey. Geo. L. Culver, Tyler, was granted a permit to drill R. M. Wood 1, center of Block 135, R. M. Hokit survey. W. L. Pickens, Dallas, was granted a permit to drill E. M. Whatley 1, (2-ac), center of Wm. Robinson survey. Simms Oil Company, Dallas, was granted a permit to drill B. Wood 2, (116-ac), 450 feet south of No. 1, I. C. Skillern survey. Maceo Jones, Houston, was granted a permit to drill J. Hilburn 1, (1-ac), center of Wilkinson survey. King & Massengill, Longview, were granted a permit to drill E. I. Anderson 4, (13-ac), 141 feet from north and 250 feet from west line of G. W. Hooper survey. Abernathy & Kirkpatrick, Tyler, were granted a permit to drill J. H. Victory 2, northwest corner of Block 29, Hokit survey. Superior Oil Company, Dallas, was granted permits to drill L. C. Ingram 15, (164-ac), 750 feet from east and 1465 feet from south line of W. E. Pasteur survey; 16, 750 feet from north and east lines of survey; 17, 750 feet from north and west lines of survey; 18, 800 feet from west and 1465 feet from south line of survey. E. L. Foshee, Gladewater, was granted a permit to drill Fee 1, (4-ac), 450 feet west of center of east line of J. R. Crosby survey. Gulf Production Company, Houston was granted permits to drill M. O. Sheppard 26, (335-ac), 660 feet southeast of No. 15, G. R. Rains survey; 25, 660 feet west of No. 3; 27, 660 feet southwest of No. 21; S. Hilburn E 51, (273-ac), 660 feet southeast of No. 3, L. B. Outlaw survey; 52, 660 feet north of No. 33. Sun Oil Company, Dallas, was granted a permit to drill A. G. Morton 6, (336-ac) 660 feet south of No. 5, S. Baggett survey. Humble Oil & Refining Company, Houston, was granted permits to drill J. A. Knowles 12, (100-ac), 456 feet from north and 265 feet from east line of M. Van Winkle survey; W. C. Mackey 6, (198-ac), 223 feet south of center of north line of H. F. Rogers survey; G. W. Johnson 9, (99-ac), 535 feet from east and 221 feet from south line of G. W. Hooper survey; 10, 263 feet from east and 140 feet from south line of survey. Magnolia Petroleum Company, Dallas, was granted a permit to drill A. Hicks 14, (99-ac), 89 feet north of center of south line of D. Dainwood survey. Stanolind Oil & Gas Company, Fort Worth, was granted a permit to drill G. F. Meadows 5, (50-ac), 68 feet from west and 9- feet from north line of D. Sanchez survey. Yount-Lee Oil Company, Beaumont, was granted permits to drill V. Calvin 7, (62-ac), 525 feet south of No. 3, H. Hathaway survey; (Corrected location) M. M. Custer 4, (75-ac), 520 feet from east and 330 feet from north line of I. Skillern survey.

In Harris County, W. B. Hamilton, Wichita Falls, was granted a permit to drill Hairgrove 1, (677-ac) 466 feet from north and 1750 feet from east line of Section 10, Block 1, W. C. Ry. Survey. H. M. Smith et al, Houston, were granted permits to drill Gillette 1, (2-ac), 200 feet from east and 75 feet from south line of Wm. Scott survey.

In Howard County, Witherspoon & Glasscock, Longview, were granted a permit to drill B. Reagan 2, (50-ac), 330 feet from south and west lines of Section 3, Block 32, T&P survey.

In Jasper County, W. L. Pickens, Dallas, was granted a permit to drill J. A. McShane 1, (3327-ac), 3937 feet from north and 770 feet from east line of W. B. Green survey.

In Kerr County, Eastland Oil Company, Fort Worth, was granted a permit to drill J. Love D1, (640-ac), 500 feet from west and 300 feet from south line of 1594 J. Martinez survey.

In Liberty County, C. G. Hammill, Houston, was granted a permit to drill N. J. McNair 1, (439-ac), 2575 feet from east and 500 feet from north line of Wm. Harris survey. Ferguson & Head, Houston, were granted a permit to drill Quintette 10, (30-ac), 87 feet west of center of east line of Section 125, H& TC survey. Cranfill & Reynolds, Houston, were granted a permit to drill Moores Bluff 11, (632-ac), 2100 feet from north and 1069 feet from east line of M. Duncan survey.

In Montgomery County, Strake Petroleum Company, Houston, was granted a permit to drill O. Etheridge 3, (222-ac), 467 feet from north and 1179 feet from east line of S. H. Bryan survey. Gulf Coast Drilling & Production Company, Houston was granted a permit to drill Keystone Mills 10, (571-ac), 434 feet from west and 466 feet from south line of A. Steel survey. Neversuch Oil Company, Mexia, was granted a permit to drill South Texas Development 3, (90-ac), 575 feet south of center of north line of No. 5, T&NO survey. Navarro Oil Company, Houston, was granted a permit to drill Perry 2, (35-ac), 282 feet from west and 770 feet from south line of T. M. Wiggins survey. Republic Production Company, Houston, was granted permits to drill C. Dudley 1, (100-ac), 137 feet from north and 466 feet from east line of C. B. Stewart survey; 2, 137 feet from north and 466 feet from west line of survey. Abercrombie & Harrison Oil Company, Houston, was granted a permit to drill J. Massey 3, (160-ac), 364 feet from north and west lines of Jno. Massey survey. Humble Oil & Refining Company, Houston, was granted permits to drill Wiggins-Athey 4, (100-ac), 865 feet southwest of No. 1, L. Smith survey; M. Hirsch A2, (44-ac), 650 feet from east and 350 feet from south line of D. McIntyre survey; M. Hirsch B5, (120-ac), 330 feet from east and 350 feet from south line of D. McIntyre survey. Sun Oil Company, Dallas was granted permits to drill W. N. Foster 9, (640-ac) 1124 feet northeast of No. 4, Jno. Bricker survey; 10, 933 feet southeast of No. 5; 11, 933 feet southeast of No. 10; 6, 467 feet from northwest and 378 feet from southwest line of survey; 8, 901 feet east of No. 6; 12, 1400 feet southwest of No. 13; 13, 1244 feet from northwest and 1633 feet from northeast line; B. E. Jones 4, (73-ac), 812 feet from west and 409 feet from south line of S. Y. Sitton survey; S. McDonald 1, (41-ac), 409 feet from north and 469 feet from west line of W. Strickland survey; Wm. Clark 2, (37-ac), 467 feet from west and 409 feet from south line of S. Y. Sitton survey. The Texas Company, Houston, was granted a permit to drill W. S. Rhodes 8, (300-ac), 364 feet from north and east lines of W. S. Rhodes survey.

In McMullen County, S. R. & C. Oil

Corporation, San Antonio, was granted a permit to drill La Chusa 2, (640-ac), 330 feet from south and east lines of NW¼ of Section 36, Gueydan survey. Loma Oil Company, San Antonio, was granted a permit to drill L. Jacob 12A, (800-ac), 1212 feet from north and 571 feet from east line of No. 10, W. H. Jacob survey. Darby Oil Company, San Antonio, was granted a permit to drill W. H. Sling 1, (640-ac), 330 feet from south and east lines of N½ of Section 111, DS&F survey.

In Morris County, T. T. Beeler, Norman, Oklahoma, was granted a permit to drill C. McCollum 1, (62-ac), 2157 feet from north and 150 feet from east line of S. A. Loving survey.

In Orange County, Texas Louisiana Oil Company, Houston, was granted a permit to drill Lutcher-Moore 1, (1300-ac), 2750 feet from east and 4625 feet from south line of Ben Johnson survey; 3, east central part of lease; 2, northwest of No. 3.

In Pecos County, Eppenauer Drilling Company, San Angelo, was granted a permit to drill White & Baker 1, (400-ac), 2310 feet from north and 330 feet from west line of Section 10, Block Z, T. C. Ry. survey. Pecos Crude Oil Purchasing Company, San Angelo, was granted a permit to drill Pecos Valley Oil 5, (160-ac), 1720 feet from northwest and 1620 feet from southwest line of Section 22, Block 10, H&GN survey.

In Rusk County, Cordova-Union Oil Company, Fort Worth, was granted a permit to drill C. O. Christian 1, (62-ac), 330 feet from north and west lines of D. Clark survey. Kennedy & Price, Tyler, were granted a permit to drill J. Williams 1, (2-ac), center of D. Clark survey. Luling Oil & Gas Company, San Antonio, was granted a permit to drill W. H. Fredericks 2, (7½-ac), 153 feet south of center of north line of J. Ximinez survey. M. T. Hall, Dallas, was granted a permit to drill R. J. Vinson 1, (1-ac), center of Jno. Darley survey. Turman Oil Company, Tulsa, Oklahoma, was granted a permit to drill W. P. Brightwell B 7, (30-ac), 125 feet from west and 629 feet from south line of R. E. Winn survey. Cordova-Union Oil Company, Fort Worth, was granted a permit to drill C. O. Christian 4, (36-ac), 330 feet from north and east lines of W. A. Elliott survey. Mid-Kansas Oil & Gas Company, Shreveport, Louisiana, was granted permits to drill R. Van Zandt 1, (98-ac), 1133 feet from north and 358 feet from west line of J. H. Sparks survey; C. L. Graham 4, (341-ac), 181 feet from north and 1104 feet from west line of P. Tipps survey. Gulf Production Company, Houston, was granted a permit to drill W. A. Maxwell 5, (57-ac), 330 feet from south and east lines of F. Cordova survey. Humble Oil & Refining Company, Houston, was granted a permit to drill M. Kangera B 10, (124-ac), 330 feet from east and 850 feet from south line of J. B. Cadena survey.

In Refugio County, M. C. McGehee, Jr., Houston, was granted a permit to drill J. M. O'Brien 1, (50-ac), 330 feet from south and east lines of Lot 7, Winfield survey. E. H. Buckner, Houston, was granted a permit to drill J. M. O'Brien 1, (25-ac), 150 feet from north and east lines of E. Winfield survey.

In Shackleford County, Cross & McCullough, Fort Worth, were granted a permit to drill G. W. Webb 2, (240-ac), 2150 feet from east and 1320 feet from south line of 586 TE&L survey. John T. Cross, Fort Worth, was granted a permit to drill Dennis 6, (247-ac), 1050 feet from west and 150 feet from south line of Section 15, LAL survey. A. C. Walker, Albany, was granted a permit to drill J. N. Cox 1, (60-ac), 150 feet from north and 750 feet from east line of Section 660, TE&L survey.

In Smith County, Texokana Oil Company, Inc., Tyler, was granted a permit to drill S. S. Cook 2, (10-ac), 150 feet east of center of west line of J. Vargas survey. Bloxom & Nash, Henderson, were granted a permit to drill F. Cole 3, (33-ac), 140 feet from north and 330 feet from west line of E. Daniels survey.

In Titus County, F. D. Prince, Corsicana, was granted a permit to drill W. H. Crawford 2, (160-ac), 300 feet from north and west lines of I. P. Stern survey.

In Throckmorton County, Holder & Gordon, Breckenridge, were granted a permit to drill R. M. Titus A7, (560-ac), 60 feet north of No. 6, N. Williams survey.

In Terrell County, W. A. Sudderth, Big Spring, was granted a permit to drill Bates-Phelps 1, (160-ac), northwest corner of Section 5, W. G. Turley survey.

In Upshur County, Conservative Oil Company, San Antonio, was granted a permit to drill O. M. Victory 6, (100-ac), 330 feet from south and east lines of E. A. J. Evans survey.

In Van Zandt County, Pure Oil Company, Fort Worth was granted permits to drill O. L. Swain 7, (120-ac), 250 feet from north and east lines of J. Walling survey; H. P. Tunnell 6, (131-ac), 595 feet from north and 225 feet from east line of Jas. Rose survey. Petroleum Pipe Line & Storage Company, Tyler, was granted a permit to drill S. S. McGee 2, (40-ac), 175 feet from south and 600 feet from east line of Block 18, W. Daniel survey.

In Van Zandt County, Jenkins Brothers, Dallas, were granted permits to drill M. E. Davis 1, (66-ac), 150 feet from south and east lines of No. 223 N.C.S.L. survey; M. E. Davis 2, 418 feet west of No. 1; M. E. Davis 3, 150 feet from south and west lines; M. E. Davis 4, 512 feet north of No. 8; M. E. Davis 6, 300 feet west of No. 4; M. E. Davis 6, 150 feet from north and east lines; M. E. Davis 7, 150 feet from north and west lines; M. E. Davis 8, 512 feet north of No. 1; M. E. Davis 9, 833 feet south of No. 7, and M. E. Davis 10, 833 feet north of No. 3.

In Washington County, Sun Oil Company, Dallas, was granted a permit to drill R. B. Clay 8, (757-ac), 750 feet from the southwest and 2450 feet from the southeast line of the J. F. Perry survey.

In Ward County, R. H. Alexander, Arlington, was granted a permit to drill L. Richter 1, (60-ac), 1650 feet from the northwest and 1170 feet from the northeast line of Section 27, Block 34, H&TC survey.

In Williamson County, M. C. Moore, Taylor, was granted a permit to drill T. C. Davis 1, (129-ac), 600 feet from the south and east lines of the H. Cook survey. Deep Pay Exploration Company, Taylor, was granted a permit to drill M. V. Lawrence 1, (55-ac), 237 feet from the west and 86 feet from the south line, S. Miller survey.

In Young County, Chas. E. Knox, Enid, Oklahoma, was granted a permit to drill A. R. Manning 2, (80-ac), 200 feet east of the center of the west line, 3412 TE&L survey. Tidwell, Hinson & Lindsay, Graham, were granted a permit to drill G. W. James 1, (40-ac), 250 feet from the south and west lines, 457 TE&L survey. Helena Oil & Gas Company, Philadelphia, Pennsylvania, was granted a permit to drill K. Grigsby 1, (320-ac), 150 feet from the south and east lines, 415 TE&L survey.

## Large Well Completed In Hilbig Serpentine

San Antonio, Texas.—Humble Oil & Refining Company succeeded in getting another large well in the Hilbig Serpentine field in Bastrop County. A. A. Friske 2, topped Serpentine at 2465 feet and drilled in the formation to 2714 feet where it topped the Austin chalk. It drilled into the chalk one foot to a total depth of 2715 feet.

The well gauged 77 barrels the first hour, 93 barrels the second hour and 73 barrels the third hour. It is one of the largest in the field.

# Sudden Drilling Increase Is Noted in South Texas

San Antonio, Texas.—A sudden increase in drilling activity is noted throughout South Texas, especially in the newest producing areas along the Balcones fault and in the Gulf Coast. Bastrop County reported several new operations, while the Victoria-Refugio trend showed further gains.

In Atascosa County, August M. Blume is preparing to drill out plugs in W. T. Shaw 1, W. Forquhar Survey, now down 1619 feet. O. W. Killam showed a little Serpentine from 3514-30 feet in O. K. Seitz 1, Cruz Ladin Survey No. 45, and is drilling ahead.

Walker and Wroe took over J. E. Emanuels' Klemm 1, R. S. Teal Survey, and are planning to resume drilling from 300 feet. It is in Bastrop County. Humble Oil & Refining Company's A. A. Friske 2, S. Wolfenberger Survey, has drilled out the plugs. It topped the Serpentine at 2465 feet, topped the Austin chalk at 2714 feet, and is at a total depth of 2715 feet. Marts and Bevans are moving on their Reyes 2, Addison Lytton Survey, and have made location for Riddle 2, Maxmillian Survey. Ogden & Reed's Tally 1, Maxmillian Survey, is a new location. Johnson & Mattoz's Harris 1, same survey, is moving on.

V. I. Grisham has spudded in J. M. Rapp 1-B, Section 12, C. Miller Survey. It is the only active well in Bee County.

C. I. Albertson is completing his J. C. Vogt 1, Section 2, McCullough Survey No. 53, Bexar County, at 906 feet. Amsler & Foster are drilling at 520 feet in San Antonio Farms 1, Tract 8, B & 2, S. A. Farms Survey. O. N. Beer et al are drilling their S. W. Kearney 1, I. Perez Survey, at 412 feet. Motes Campbell Company have skidded derrick and are rigging up for R. T. Pruitt 2, McCullough Survey. Earl S. Post is milling out casing in Bilhartz 1, F. Rolen Survey No. 48. It is down 783 feet. J. Morgan Russell is preparing to resume drilling B. Brotze 2, S. Cardenas Survey, now down 340 feet.

A new test is starting in Blanco County. It is Blanco County Development Company's A. J. Dittmar 1, George Evans Survey.

Detroit-Texas Development Company is preparing to spud in Louis Rofers 1, A. Floyd Survey No. 46, Caldwell County. Humble Oil & Refining Company is finishing up F. Gray 1, J. Hinds Survey, at 2660½ feet.

L. G. Wade is moving in materials for Wade and Koether 1, DeWitt County.

Duval County is rather active. Almer Stewart's G. B. Parr 1, Section 185, is a new location. Shasta-Highland Oil Companies are moving on for W. R. Peters 4, Section 65. Coffey & Etheridge have built derrick for Parr 1, Section 27. DeSoto Oil Company's Wood & Welder 1, Section 211, is drilling at 1615 feet. G. G. Mortimer et al's Peal 1, Section 792, is drilling at a shallow depth. John O'Hearn's Smith & Corkill 1, Section 491, is down 735 feet. Sarnosa Oil Company is drilling out the plugs in A. Weil 7, Section 130, the sand being topped at 2377 feet. Wilkins Seacord has made a location for another well on the Lundell tract in Section 48. Sun Oil Company is drilling at 360 feet in Weiderkehr 2, Section 359. The Texas Company's H. Wendt 6, Section 42, is at 2000 feet, while the Navarro Oil Company is down 1936 feet in C. W. Hahl 7, Section 360. Whisenant and Trenchards' Duval Ranch 1, Section 76, is drilling at 1635 feet.

Two new wells are announced in Goliad County. Sam Vanderweide has located his J. R. Kauffman 2 in the P. Trevino Survey, and R. C. Young is preparing to drill Mrs. Carrie B. Wood 1, Sarah Hall Survey.

Frank Seale has acquired the interest of Johnston in Carl and Johnston's W. M. Doughty 1, No. 9, San Salvadore Survey, Hidalgo County, and it is resuming drilling from 2300 feet. Maxwell & Young are still waiting on machinery to spud in King 1, Lot 8, Block 16, Alamo tract.

Seaton A. Barnes, Jr., is spudding Holbein 1, Section 1, Block 54, Las Animas Grant, Jim Hogg County.

Crude Oil Royalty Company is waiting on cement after setting casing on a showing in the W. D. Wade 1, B. B. Allen Survey, Lot 2, Jim Wells County. F. B. Nayer has located his E. G. Vela 1, Section 723, in the same county.

In Kerr County, J. M. Anderson is drilling around 1100 feet in J. D. Witt 1, Hamilton Survey. Eastland Oil Company set 600 feet of 12½-inch casing in Jeff Love 1-D, Love ranch, and has resumed drilling.

Argo Royalty is rigging up for Nichols 1, Simeon Ryan Survey, Live Oak County wildcat south of Fant City. Jacob, Buzzini & Pickett (Lomax Oil Company) are completing I. W. Griffith 1, M. McCowen Survey, at 927 feet.

In McMullen County, C. C. Shumway and associates are moving in two miles northeast of their second well for Shiner 3. C. C. Gillette et al's J. Dickinson 1, Block 29, A. Barrera Survey, is drilling out plugs after having sand from 689-94 feet. Light Stephenson has drill stem stuck at about 1200 feet in C. T. Clark 1, Block 15, Scrugham Survey. C. R. Pope, Inc.'s, E. L. Miles 1, Section 14, S. & M. Survey, is coring at 1791 feet after topping Pettus sand at 1780 feet. S. R. & C. Oil Company & Sinclair Prairie Oil Company are coring for the Cole sand in LaChusa 2, Section 36, at 1100 feet.

R. M. Yantis is deepening his Adams 1, Adams Gas field, Medina County, from 700 feet.

Three more operations are starting in Nueces County. S. F. Hurlburt is preparing to move on for a well on an 8000-acre block seven miles south of Corpus Christi on the Rockport Anticline. A. C. Erwin has located his J. Sagarin 1, Section 4, Range 9, H. L. Kinney Survey. J. A. Kosar is preparing to drill his L. Folda 1, Lot 4, Section 12, Bohemian Survey. C. N. T. Oil Company is coring at 4803 feet in L. M. Vance 1, Section 402. Gulf Port Oil Company's Humphrey 3, Section 406, is coring at 4678 feet. A. F. Hilliday is completing F. J. Smith 2, Block 36, H. E. Shepard Survey. Houston Oil Company has drilled in E. McGregor 1, a deepening job, and it is in process of completion at 4874 feet. Sinclair Prairie Oil Company's T. H. Isensee 1, Section 404, is a big gasser, showing a little oil and some salt water at 4899 feet.

In Refugio County, Hamilton and Beasley are about ready to move on to Damann 1, Section 16, Bonnieview subdivision of the Brooks ranch. United Production Company's M. F. Lambert 1-A, Hews & Brown Survey, is making a drilling stem test of a sand at 5012-25 feet.

Saxet Oil Company's F. S. Rachal 19, J. N. Seguin Survey, has been plugged back from 7205 feet to 2583 feet, and is in process of completion as a gas well. It is in San Patricio County.

D. & B. Oil Company is drilling out plug for Kelsey Bass 1, Porcion 87, Carmargo Survey, Starr County, showing for a gasser at 4520 feet. E. R. Cooper is drilling J. M. Martinez 1, Section 135, at 2210 feet. Rig is being moved on George Stovall's J. W. Seabury 1, Section 107, to be deepened from 210 feet. Hooks & Weaver are

drilling at 1776 feet in hard shale in Kelsey Bass 15, Section 6, Porcion 75-76-77. E. R. Stickney's Gonzales 1, Section 339, is drilling at 1012 feet.

John F. Camp has made a location for his J. Maurer 1, Colleto Creek area, Victoria County, and Stonleigh Oil & Gas Company is moving on Mrs. Eetta Terrel 2, R. Manchola Survey No. 2. The Texas Company is still working on its McFadden 6-A, J. Gray Survey, attempting to control the wild gas in the McFadden area.

Cole, Wise & Laurel's D. Villareal 3, Block 7, Section 1100, Webb County, has been spudded. Reward Oil Company's G. Villareal 1, Block 6, Section 1100, has spudded. E. M. Jones is drilling at 4100 feet in Callaghan 1, Section 603, and has made location for Callaghan 2, Section 1211. Montex Oil Company has located its Caltex Royalty Company 1, Block 12, Section 768, and its Laurel 1, Block 4, Section 270. Washbaugh and Roberts are moving onto Brunn 1, Section 139. J. W. Edwards is starting up on Volfe Brothers 1, Block 2, Section 71. Shankle & Roche are below 1000 feet in W. W. Stell 1, Section 37. Seagraves & Salsbury are rigging up for A. E. Gates 2, Block 12, Section 64. Texas Unity Oil Company's L. Yeager 1, Section 51, is drilling at 675 feet.

# Greta and Coletto Hold South Texas Limelight

San Antonio, Texas.—Two important strikes, one of which indicates another Refugio field, attract attention to the South Texas Gulf Coast. One is in Victoria County and the other in Refugio County.

The Refugio well is the Greta Oil Company's J. W. O'Brien 1, nine miles northeast of Refugio and five miles northeast of the Fox-Lambert area, nearest production. The well is flowing at the rate of about 22 barrels an hour on a one-fourth-inch choke and showing 520 pounds of pressure. It has seven feet of sand from 4396 feet to 4403 feet, the total depth.

Probably the most important part of the strike is that the oil is of 21.6 gravity, almost identical to the production in the first oil bearing horizon of Refugio field, which has produced many millions of barrels of crude. This oil has a rather heavy demand, due to its excellent lube base and high anti-knock qualities.

The well is located 450 feet from the east line and 2600 feet from the south line of the 525-acre tract in the Winfield survey, near the town of Greta. The company holds approximately 1200 acres in the block.

Greta Oil Company is headed by George E. Smith, famous for his many discoveries throughout this particular area. He did the first development work in the Pettus area, Bee County, drilling gas wells. In addition, he discovered several of the deep sands in the Refugio field. He has several other discoveries to his credit in this particular section of Texas.

Several small pieces of acreage changed hands for high prices, $500 in cash and $500 in oil per acre, during the last few days, and a number of tentative locations have been made. The field is expected to get an immediate and rapid development campaign.

Farther east and in Victoria County, the Stonleigh Oil and Gas Company is testing the quantity of high gravity oil (gasoline) being sprayed from its new producer. The well had a sand from 4433-37 feet, its total depth, which made a giant wet gasser. It showed 1600 pounds pressure on a 1/32 choke, 1700 pounds on a one-fourth-inch choke, and 1850 pounds on the tubing and 1830 pounds on the casing; the latter two pressures being closed in. Storage and separators have been erected and the flow recorded.

The well is the E. B. Terrell 1, located 700 varas east of the northwest corner, then 2350 varas southeast at right angles in the R. Manchola Survey No. 2. The tract consists of 215 acres. The well is four miles southeast of Victoria and 15 miles northwest of the McFadden district. The acreage was formerly held by the Gulf Production Company, but 4000 acres were transferred to the Stonleigh for the drilling of the well.

Two locations have been made in the immediate vicinity of the well for additional tests. John F. Camp's J. Maurer 1, on a 178-acre tract south and adjoining the Terrell lease, is a location. Mr. Camp drilled the discovery well for Stonleigh, which has located its Terrell 2, 1000 feet southeast of the first well. Rig is being moved on.

The names of the two fields have not been definitely selected, but it is likely that the new Victoria area will be known as Coletto Creek, due to its location, and the Refugio County field will be known as Greta, both for location and for the discoverer.

## Two New Fields Feature South Texas Completions

San Antonio, Texas.—To new South Texas oil fields and a large well in the Hilbig district, Bastrop County, features completions. The Hilbig well flowed 93 barrels in one hour. The completions follow:

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Bastrop County— | | |
| Humble Oil & Ref. Co., A. A. Friske 2, S. Wolfenberger survey | 1752 | 2715 |
| Bee County— | | |
| John O'Neill et al, Plummer 1, sec. 34 | * | 4253 |
| Bexar County— | | |
| Motes-Campbell Co., R. T. Pruitt 1, McCullough sur. | * | 1062 |
| Duval County— | | |
| George Parr et al, C. W. Hahl, sec. 46 | * | 2398 |
| Nueces County— | | |
| Sinclair-Prairie Oil Co., T. H. Isensee 1, sec 404 | ¶40 | 4899 |
| Refugio County— | | |
| Humble O. & R. Co., O'Conner 5, F. Rios sur | * | 3290 |
| Greta Oil Co., J. W. O'Brien, Winfield sur, ¾-in. choke | 525 | 4403 |
| Webb County— | | |
| Earl Calloway, A. E. Gates 1, sec. 14 | * | 2603 |
| Zapata County— | | |
| Texas Co., Jennings 27, Cerrito Blanco Grant | 50 | 1206 |
| Garrett, Lefevre & Spice, M. Garza 1, blk. 53, Las Comitas Grant | * | 1668 |

*Failures; †Junked; ‡Million cu. ft. gas.

## Several Wells Due Soon in Saxet Field

San Antonio, Texas.—Several wells are in process of completion in the 4800-foot sand in Saxet field of Nueces County, while another is attempting to establish production at 4750 feet.

Gulf Port Oil Company's Humphrey 3, Section 406, has a sand at 4745-55 feet, where a drill stem test is being made.

Sinclair Prairie Oil Company's T. H. Isensee 1, Section 404, has been completed as a big gasser spraying a little oil and salt water. It showed a pressure of 1900 pounds.

Houston Oil Company's E. McGregor 1, sand from 4852-74 feet, is rigging up Christmas tree, and A. F. Holliday is fishing for a swab at 4874 feet. C. N. T. Oil Company is coring sand and shale at 4831 feet in L. M. Vance 1.

## Gueydan Production Is Extended 600 Feet North

Houston. — Production at Gueydan dome, Vermilion Parish, Louisiana, was extended 600 feet north this week by completion of Pure Oil Company's Mulvey Irrigation Company 3 at 4299 feet for an initial flow of 25 barrels net oil per hour, representing 79 per cent of the fluid.

Mulvey 3 set 69 feet of five-inch perforated liner on bottom and ran 2½-inch tubing to 4266. Initial production came through a three eighths-inch choke carrying a 240-pound pressure.

Completion of Mulvey 3 left but one drilling test in the field, Mulvey 2, which was coring hard sandy shale at 5513 feet May 26. However, the operator has announced locations for Alliance Trust Company 4 and 5. Alliance 4 is a west offset to this week's completion, being 578 feet south of the north line and 1920 feet east of the west line of Section 34-11s-1w. Alliance 5 is to be drilled 225 feet south of the north line and 580 feet east of the west line of the section, or 1050 feet west northwest of Alliance 3.

Daily production at Gueydan May 19 amounted to 645 barrels from three flowing wells of Pure Oil Company. Alliance Trust Company 2 was flowing 234 barrels net, 11 per cent water; Mulvey 1 was flowing 100 barrels net, seven per cent water, and Mulvey 3 was flowing 311 barrels net, 25 per cent water.

## Rio Bravo Completes Pumper at Darrow

Houston.—Rio Bravo Oil Company's Community 2, located 1200 feet east of the discovery well of Darrow dome which was completed for 100 barrels an hour at 4035 feet, was put on the pump this week at 4827 feet for 80 barrels per day initially.

Darrow dome, located in Ascencion Parish, Louisiana, is the scene of two other active tests, both Rio Bravo projects. The discovery well, Community 1, is being worked over. May 26 it was being swabbed. Gumble 1, located 600 feet west and 1760 feet south of Community 1, was waiting orders at 6052 feet.

## Greta Is Name Given to New Refugio County Pool

Houston.—C. C. Miller, chairman of the committee on nomenclature for San Antonio Geological Society, stated May 20 the committee had recommended the name of "Greta" for the new pool recently discovered north of Refugio in Refugio County by George E. Smith's O'Brien 1, located a mile northeast of the town of Greta.

# Wildcatting Widespread In Texas Gulf Coast

Houston.—A wildcatting campaign of greater proportions than has ever been witnessed before in the Texas Gulf Coast is in full swing. The amount of acreage tied up in wildcat blocks and leases along the coast between the Sabine River on the east and the western boundaries of Jackson, Matagorda and Lavaca Counties on the west is tremendous. The leasehound is overlooking nothing. He used to be a bit choosey, but that's a lost art now.

One week the activity will seemingly wane, only to be revived on a larger scale the next week. Condemnatory abandonments on prospects here and there seem only to call forth announcements of new tests in other areas. One dome prospect is thrown into the discard, and—voila! a couple of new ones spring up to take its place.

So far as the regional pride of the Gulf Coast is concerned, the widespread prospecting is a beautiful thing. So far as an already ailing crude market surfeited with wallflower supply is concerned, it's a pain in the neck.

Cranfill-Reynolds Oil Company drew a blank in Austin County when R. C. Swearengen 1, five miles south of Bellville and in the C. K. Ham Survey, was abandoned at 4540 feet in salt water sand. That's temporary relief in one spot, but it won't last. A wildcat report without Cranfill-Reynolds on it somewhere is almost regarded as counterfeit.

E. A. Anderson's new test rigging up at Flag Pond, Brazoria County, is headed for the Oligocene. It is known as Reynolds 1, and is in Johnson Walker Borden League, where Anderson et al have a 3900-acre block.

Danciger Oil Refining Company's W. S. Hunt 2 at Pledger in Brazoria County, a recently found reservoir, cored rich, saturated sand at 6858-84 feet this week. The crew is waiting orders to set casing.

Rycade Oil Corporation and Amerada Petroleum Corporation completed Seaburn 3 this week to bring about a 1½ mile eastward extension of Stratton Ridge field in Brazoria County or establish the existence of a new pool. Seaburn 3 is producing 30 barrels of pipe line oil per hour from 4500 feet.

Seven miles northeast of Kurten in the Isaac Curd Survey of Brazoria County, Scott and Elliott have a derrick up for Klintworth 1, a 3700-foot contract test on a large block, (14,000 acres in two blocks).

Mills and Jones are drilling slightly below 1700 feet in Gau 1, John S. Roberts Survey, Chambers County.

Colorado County, recently interesting because of Plymouth Oil Company's strike near Garwood, has a number of active tests. Plymouth's F. L. Ream 1 set seven-inch casing at 6145 feet after having tested oil cut mud at 6140-6200 feet. It is in Section 47, I&GN RR Survey. Danciger Oil Refining Company's Raver 1, BBB&C RR Survey No. 1, is drilling below 4525 feet. Humble Oil & Refining Company's McLane 1, Section 42, I&GN RR Survey, was in sandy shale at 6231 feet after having tested drilling mud at 6175-6221 feet. McCullock Oil Company is moving in rig for Kansteiner 1, two miles northeast of Columbus in the Leander Beason Survey. Weimar Development Company is rigging up four miles north of Borden on H. T. Brandt 1, F. Pettus Survey.

Petroleum Southwest Corporation set 10-inch casing at 800 feet in Greer Brothers 1, Carlos district of Grimes County. In the same county, Koch et al's Haferkamp 1, 3½ miles northwest of Whitehall and in the Samuel Fulton Survey, was drilling shale and lime at 1585 feet.

Houston Oil Company and Republic Production Company are preparing to pump Ariola Fee 3 at Ariola, Hardin County. The well is 4320 feet deep and carries 18 feet of screen.

Off the flank of Batson field, Hardin County, Danciger Oil Refining Company's Hooks 1 was drilling sandy shale at 4510 feet. Off the flank of Saratoga, another

### TOMBALL WILDCAT DUE TO RUN SCREEN MAY 27

**Houston.—Magnolia Petroleum Company and Humble Oil & Refining Company's Kobs 1, key well in Tomball area which has drawn more attention and interest for two weeks than any well in the Texas Gulf Coast, was scheduled to drill out the plug at 5568 feet May 27 and run screen.**

**Kobs 1 is testing a 6000-acre block inherited by Magnolia from Vacuum Oil Company when the two merged. It is 2½ miles southwest of Tomball.**

**Martens 1, Magnolia and Humble's other key well in the wildcat area, continues to look less likely for commercial production as it drills deeper. May 26 the well was standing at 5960 feet, approximately.**

Hardin County field, Seven Wells Corporation is reported to have set about 1200 feet of casing in Teel 1.

Harris County has a number of drilling wildcats and several new locations this week. D. P. M. Corporation's Malcomson 1, A. Shouten Survey, seven miles south of Hufsmith, was coring sand at 1550 feet. Six miles southeast of Hufsmith-Tomball area and in the C. H. Delesdenier League, C. & C. Drilling Company and Van McPhail have spudded Erhardt 1. East of Crosby and in the H&TB RR Survey, Abstract 391, Burns, Ogg & Houston have erected a derrick for Kenning 1. Hamilton et al are rigging up on Hargrove 1, a mile west of Fairbanks and in the WC RR Survey No. 10. In the northwest corner of the county, Sinclair Prairie Oil Company has set 750 feet of 10-inch casing in Kirmayer 1, Jesse Denson Survey. At Mount Houston, Greens Bayou Oil Company is shut down at about 2750 feet in P. S. Griffith 1. In the Mykawa district, Jack Schultz is moving in a rig for Woodburn 1, 450 feet northwest of the center of the August Whitlock Survey.

The Texas Company is drilling below 4226 feet in I. N. Mitchell 1, north of Lolita in Jackson County. On the east edge of Ganado, Jackson County, Turnbull et al were reported drilling below 4420 feet in Mauritz 1, John Davis Survey.

W. J. Parker et al's Winnie T. Rorick 1, four miles north of Beaumont in the A. Williams Survey of Jefferson County, is drilling below 2232 feet.

A new wildcat location was announced for Lavaca County. Plymouth Oil Company will drill Fahrenkamp 1, 330 feet out of the southeast corner of a 202-acre tract in the Moses Mitchell Survey, seven miles west of Halletsville.

In Liberty County, Gulf Production is pulling screen to work over Crowe and Jacobs 1, Section 21, H&TC RR Survey. Yount-Lee Oil Company's Boyt 1, H&TC RR Survey No. 17, was drilling in shale at 7380 feet.

Cockburn Oil Corporation's Hawkins 5, Sheppards Mott, Matagorda County, cored sandy shale and lime with an odor of oil at 5530 feet. Humble Oil & Refining Company's Pierce Estate 2, Pledger district, Matagorda County, was drilling in shale at 6669 feet.

United North & South Development Company has several interesting tests at Buckeye, Matagorda County. Sheldon 1 Unit 25 was in shale and lime at 4000 feet. No. 1 Unit 14 was preparing to complete at 7841 feet, having set 157 feet of screen. Stoddard 1, the discovery well, set 100 feet of screen at 7860 feet and swabbed fluid that was 75 per cent salt water. Stoddard 2, Unit 2 was milling out at 5550 feet.

In Polk County, Roxie Oil Company's Kavanaugh & Collins 1, 9000 feet north of Schwab's discovery well of Livingston pool, was preparing to drill plug from 6⅝-inch casing set at about 4239 feet. Dick Schwab's Craig 1, Augustine Viesca Survey, set 10-inch casing at 475 feet. Kirby Petroleum Company's Kirby Lumber Company 1, James Stephenson Survey, set 10-inch at 225 feet. Carl B. King's U. S. Alabama Indian Reservation 1, Thomas Colville Survey, is shut down at 3500 feet. Boone, Clarke & Boone's Texas Long Leaf Lumber Company 1, D. B. McComb Survey, four miles east of Leggett, was drilling in shale at 3750 feet.

In the Spurger area of Tyler County, Republic Production Company's Sterne Fee E-1014 No. 2, was drilling in shale at 6060 feet.

Trapshooter Riley Oil Company's Menke 1, Justo Liendo Survey of Waller County, was drilling sand and shale at 3638 feet.

Cline and Taylor's Chadwick 1, Isaac Lee Survey of Washington County, was drilling in gumbo at 2365 feet.

Pure Oil Company's Stewart 1, south of Louise in Wharton County, tested salt water at 6809-19 feet, and was in hard sandy and stick shale at 6892 feet.

## Anticipate Decline in Gulf Coast Completions

Houston.—Field results in the Texas sector of the Gulf Coast showed a sharp increase over the week previous, but continued fully 25 per cent below the average established during the past three months.

Completions recorded totaled 21, of which 16 were producing oil wells. This compares with 14 completions and 11 producers for the week previous.

Initial production this week aggregated 24,748 barrels, of which 20,160 barrels represented 12 wells in Conroe field, the most active spot in the Gulf Coast.

Thompsons field accounted for five of the week's completions. Three of these were producers with a combined daily yield, initially, of 3700 barrels.

The situation in the Texas Gulf Coast seems to call for expectancy of a gradual tapering off of field results for June and July, with a possible pick-up at the end of this period pending developments of any one of several "on the griddle" wildcat plays, i.e., Tomball-Hufsmith, Batson, Livingston, Garwood, Stratton Ridge.

Completions of the week follow:

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Austin County— | | |
| Cranfill-Reynolds Oil Co., R. C. Swearengen 1, C. K. Ham Sur. | * | 4540 |
| Conroe Field— | | |
| Feltex Oil Co. & Kirby Pet. Co., Bertrand 5 | 1920 | 5148 |
| Gulf Coast Drlg. & Prod. Co., Keystone Mills B-6 | 2040 | 5092 |
| Houston Oil Co. & Tidewater Oil Co., C. L. Dobbins 2 | 120 | 5099 |
| C. L. Dobbins 5 | 840 | 5126 |
| Tide Water Oil Co. & G. W. Strake, C. M. Dean 6 | 1416 | 5088 |
| Humble Oil & Ref. Co., E. B. Hill 1 | 2160 | 5143 |
| Madeley 35 | 2040 | 5118 |
| South Texas Dev. Co. 46 | 1704 | 5151 |
| Southern Liberty Oil Co., Allen 1 | 2160 | 5086 |
| W. M. Massey, Receiver, Mrs. Fannie Hooper 3 | 1680 | 5110 |
| Republic Prd. Co., B. D. Griffin 2 | 2520 | 5092 |
| Neversuch Oil Co., South Tex. Dev. Co. 4 | 1560 | 5132 |
| Manvel Field— | | |
| The Texas Co., Davis 1 | 888 | 3871 |
| Liberty County— | | |
| Toner & Purdy, Martha E. Roberts 1, Ace dome, Fernando de Rumayor Sur... | * | 5300 |
| Montgomery County— | | |
| A. H. Parsons, Drought 2, J. Kronkite Sur. | * | 4450 |
| Thompsons Field— | | |
| Humble Oil & Ref. Co. & Gulf Prod. Co., F. I. Booth A-14 | 1080 | 5320 |
| F. I. Booth A-15 | 1420 | 5300 |
| A. P. George A-6 | * | 5765 |
| H. P. Lockwood 13 | * | 5630 |
| A. E. Myers 7 | 1200 | 5300 |

*Failures; †Junked; ¶Million cu. ft. gas.

## Texaco Gets Two Wells In Coastal Louisiana

Houston.—Two commercial wells were completed by The Texas Company in Coastal Louisiana. At East Hackberry field, Cameron Parish, State 10-B was good for 1800 barrels of 28 gravity oil. At Lake Barre, Terrebonne Parish, State Lake Barre 7, a workover, made 1155 barrels when plugged back from 6657 feet to 3860 feet.

Other completions were failures. They follow:

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| East Hackberry— | | |
| The Texas Co., State 10-B | 1800 | 7266 |
| Union Sulphur Co., Humble 5 | * | 6482 |
| Lake Barre— | | |
| The Texas Co., State Lake Barre 7 (wo) | 1155 | 3860 |
| Lake Washington— | | |
| Humble Oil & Ref. Co., Cockrell-Moran 9 | * | 1187 |

*Failures; †Junked; ¶Million cu. ft. gas.

# Converse Area Holds Interest Among Louisiana Wildcats

Shreveport, Louisiana.—Drilling tests in the Converse field of Sabine Parish continued to hold center of wildcatting interest in North Louisiana last week.

Two and one-half miles south of the nearest producer in that area, R. L. Gay, Trustee's, Long-Bell Lumber Company 3, SE NE NE Section 5-8-13, last week tested 47 joints of oil, gas and mud in another drill stem test in 20 minutes, after setting the tester at 1715 feet, with total depth of 2049 feet, near base of the chalk. The fluid had to work up 300 feet through heavy mud. The test was made after an oil show in the chalk at 2025-29 feet. Eight and one-fourth inch casing is being set at 1892 feet. This well checks 150 feet higher structurally than the same operator's Long-Bell A-1, NW NW Section 10-8-13, shut down at depth of 7154 feet, the deepest hole ever drilled in North Louisiana.

One and one-half miles northwest of the nearest of the four shallow oil wells producing from the marl-chalk horizon in Converse, Sabine Production Company's Whitney Corporation 1, located 150 feet north and east SWC Section 4-9-13, blew out May 25 while operators were coming out of the hole preparatory to starting ratholing for the Tokio, making gas and a spray of salt water, probably coming from the Ozan at around 2200 feet. Efforts were being made to kill the gas.

Status of other active Converse tests follows:

Chief Oil Company's Bowman-Hicks 1, NE NW Section 36-9-14, drilling below 2900 feet; Mrs. Mamie S. Hammond's Patrick Heirs 1, Section 1-9-13, is drilling below 2145 feet and planning to go to the Washita. Lambert et al's Edwards 1, SW NW Section 29-9-13, is drilling at 3120 feet; H. C. Lessenger, who found about half a bailer full of oil when he went back into the hole to resume at 2030 feet, now has a fishing job at 2060 feet; Golden et al (formerly carried Dave McConnell et al) spudded Cranford 1, SE NW SE Section 20-9-13. Helena Oil & Gas Company are rigging up for Pugh Estate 1, SE SE Section 18-9-13. A. C. Scott is whipstocking in Burkett 1, NW SW Section 10-9-13 after casing collapsed at 1802 feet.

Status of other active wildcats in North Louisiana follows: In Bienville Parish, J. E. Sedberry et al are rigging up for J. E. Sedberry 1, NW SE SE Section 15-16-8w. Towery Drilling Company has the contract. This test was originally Granver Oil Company's Lawhon 1. Lacolo Oil Company is waiting for cement to set on surface casing set at 120 feet in Beck 1, Section 3-18-8w.

In Bossier Parish, Jensen, Nixon and Gutzler of Dallas have made location and have materials there for Ledbetter 1, SE SW SE Section 6-18-11.

In Claiborne Parish, Haynesville Partnership's J. L. Garrett 1, NW SW Section 24-23-8w, is drilling below 3275 feet; it will be a 4700 foot test. In the same parish United Gas Public Service Company is fishing for hung drill stem in Meadows 1, NE SE Section 13-21-5w. In the same parish the same company's M. E. Temple 1, Section 21-23-7w, has temporarily shut down for fuel at depth of 4640 feet.

In DeSoto Parish E. T. Oakes' Johnson 1, Section 30-13-15, is still being reamed out; total depth is 4701 feet. In the same parish, Jack Whitson's Sanders 2, SW SW Section 19-11-13, is drilling below 2450 feet. In Morehouse Parish, H. G. Samson of Fort Worth has spudded his 3500 foot test, Barnes & Sullivan 1, NE SW Section 12-21-7e and is arranging to set surface casing.

In Sabine Parish Langley et al have spudded Peavy-Wilson 1, NE NE Section 16-5n-9w, and cemented surface casing at 210 feet.

In Webster Parish R. E. L. Silvey et al's Drake Estate 1, NE NW Section 14-19-10 is giving trouble with heaving hole. Total depth is 3712 feet and operators plan to go to at least 4000 feet.

# With Fifteen New Wells Started Louisiana Permits Holding Up

Shreveport, Louisiana.—Fifteen permits to drill oil wells issued in Louisiana this week brought the state's total for the year up to 190, which compares with 189 for the corresponding period of 1932.

In Bienville Parish, J. E. Sedberry et al, Shreveport, were granted a permit to drill J. E. Sedberry 1, 330 feet south and east NWC SE Section 15-16n-8w.

In Cameron Parish, Union Sulphur Company, Sulphur, was granted a permit to drill Humble 6, 1075 feet west and 500 feet north SEc Section 11-12s-10w.

In Iberia Parish, Jefferson Lake Oil Company, New Iberia, was granted a permit to drill Lake Peigneur 57, 480 feet southeast No. 31 and 1280 feet northwest No. 54.

In Jefferson Davis Parish, Shell Petroleum Company, Houston, was granted a permit to drill A. O. Fontenot 4, 330 feet south and east NWc SW¼ fraction of Section 7-9s-6w.

In Morehouse Parish, United Gas Public Service Company, Houston, was granted a permit to drill Crossett 28, 2640 feet south and 1991 feet east NWc of Section 27-21n-4e.

In Plaquemine Parish, Humble Oil Company, New Orleans, was granted a permit to drill Cockrell-Moran 13, 676 feet east and 351 feet south Station "Wash." Humble Oil Co., New Orleans, was granted a permit to drill Cockrell-Moran 8, 3021 feet east and 1199 feet south of Station Wash, T. 20s-26e.

In Sabine Parish, New Deal Oil Company, Shreveport, was granted a permit to drill Sabine State Bank 1, 330 feet south and east from NWc of Section 28-8n-11w. O. S. Golden, Goldena, was granted a permit to drill Crawford 1, 330 feet west and 465 feet north SEc NW¼ SE¼ of Section 20-13n-9w. Rolland Oil Company, Dallas, Texas, was granted a permit to drill E. Stevens 1, 330 feet south and 330 feet east NWc SE¼ NW¼ of Section 17-9s-11w. J. W. Bettis, Shreveport, was granted a permit to drill Schull 1, 450 feet west and 450 feet north SEc NE¼ SW¼ of Section 26-8n-12w. Helena Oil & Gas Company, Philadelphia, Pa., was granted a permit to drill Pugh Estate 1, 990 feet north and west SEc of Section 18-9n-13w. Service D. & R. Corporation, Shreveport, was granted a permit to drill E. E. Smith 4, 330 feet south and west from Cor. SW¼ of Section 7-7n-10w. D. Thompson Drilling Company, Shreveport, was granted a permit to drill W. G. Shuford 1, 200 feet south and 219 feet west NEc of Section 34-8n-12w. Baird & Baird, Shreveport, were granted a permit to drill Tramel 1, 600 feet north and 330 feet west SEc NE¼ of Section 30-8n-11w.

# No Completions But Drilling Active in North Louisiana

Shreveport, Louisiana.—North Louisiana failed to record a single commercial well last week, all three completion being wildcat failures. However, 12 new locations were announced, the largest number in several weeks.

Seven of the new locations are in the Zwolle chalk rock field in Sabine Parish. They follow: Baird Brothers, W. Trammell 1, located 600 feet north and 330 feet west SE NE Section 30-8-11e; E. D. Holcomb, Shuford 1, located 200 feet south and 219 feet west NE NE Section 34-8-12; Shuford 2, located 334 feet north and 219 feet west SE SE Section 27-8-12; New Deal Oil Company, Sabine State Bank 1, located 330 feet south and east NWC Section 28-8-11; Pugh and Hickman Drilling Company, Blackman 7, located 330 feet north and east SWC NE NW Section 36-8-12; J. C. Chandler, Raines 1, SW NW Section 14-7-11; and H. C. Maulding, De Latin 1, NE SE Section 3-7-11.

The Texas Company has run derrick pattern for W. E. Sisson et al 1, located 300 feet north and 820 feet east of the center of Section 20-22-7e, Morehouse Parish, a wildcat test on a 15,000 acre block which this company has held for several years. A test drilled on this block by the same company in Section 15-22-7e, had a good oil show around the 2900 foot level.

United Gas Public Service Company made locations for two tests in the Monroe gas field, one in Morehouse Parish, Crossett Lumber Company 26, located 1991 feet east and 2640 feet south NWC Section 27-21-4e, and the other in Union Parish, Fee 101 No. 1, located 1980 feet north and 1906 feet east SWC Section 7-20-4e.

In the Ouachita Parish part of the Monroe gas field Inabnet and Pipes spudded and set 12½-inch surface casing in a new location, Van Horn 2, Section 14-18-4e.

In the Spring Ridge field of Sabine Parish, which is several miles north of Zwolle, several miles east of Converse and several miles southwest of Pleasant Hill, all in Sabine Parish, Rowland Oil Company erected derrick for D. E. Stephens 1, located 330 feet south and east NWC SE NW Section 17-9-11. This is in the same section in which Langbridge Oil Corporation over two years ago completed a 40 barrel commercial oil well in the Washita at 3350 feet.

A wildcat more than a mile northeast of nearest production in the northeast part of Zwolle, William Ungerman's Francis Cross 1, located 53 feet south and 146 feet west NEC SW SE Section 25-8-11, Sabine Parish, was abandoned as dry at total depth of 2635 feet.

The second of a series of tests being drilled northeast of the shallow Hosston field in Caddo Parish by Caddo Prairie Development Company was abandoned last week as a salt water hole at 2000 feet. This is Hawkins 1, located in CSE SW Section 14-22-15.

In Webster Parish, W. C. Blackman, Trustee's Pardee Company 1, located 330 feet south and west NEC SW NW Section 36-22-10, was a salt water hole at 2811 feet.

Completions in North Louisiana last week follow:

| Company, Well and Location | | Init. Prod. Bbls. | Depth |
|---|---|---|---|
| Caddo Parish— | | | |
| Caddo Prairie Dev. Co., Hawkins 1, 14-22-15 ..... | * | 2000 | |
| Sabine Parish— | | | |
| William Ungerman, Francis Cross 1, 25-8-11 ..... | * | 2625 | |
| Webster Parish— | | | |
| W. C. Blackman, Trustee, Pardee Company 1, 36-22-10 ..... | * | 2811 | |

*Failures; †Junked; ¶Million cu. ft. gas.

## Ship Surplus East Texas Oil to La. and Arkansas

Shreveport, La.—Tank farms in the North Louisiana and Arkansas districts that have been idle for years are being pressed into service to accommodate surplus high gravity crude originating in the East Texas field.

Deliveries are being made through direct pipe line shipments, and by rail in trainload quantities.

The Texas Pipe Line Company is piling up stocks in four idle 55,000 barrel steel tanks at Haynesville, Louisiana, after having apparently run short of storage space on the Texas Coast. This company is credited with planning to divert about 20,000 barrels oil daily upon the filling of the above tanks to its Louann tank farm, near Smackover field, where space is available for about 800,000 barrels.

Atlas Pipe Line Company, owner of an eight-inch line handling about 45,000 barrels of crude daily from the East Texas field to Shreveport and points north, is credited with backing up from 15,000 to 20,000 barrels oil daily in tank farms owned or controlled through affiliated units in the Louisiana-Arkansas district. The company has about 1,000,000 barrels of crude in storage, and an almost identical volume of idle tankage space, although scattered among five farms, including a farm composed of three 80's in the East Texas field.

Lion Oil Refining Company, Ouachita Refining Company and Root Refining Company are receiving large quantities of East Texas oil for current requirements and storage through the Atlas Pipe Line Company's system and by tank cars.

Louisiana Oil Refining Company, a unit of the Henry L. Doherty Interests, is also a major consumer of East Texas crude at its Shreveport plants, using the eight-inch carrier of the Arkansas Pipe Line Company for transportation.

O. C. Bailey and Trimble, El Dorado, Arkansas, operators with production on two leases in the East Texas field, have been shipping oil from East Texas through Atlas Pipe Line Company lines at a rate of 5000 barrels daily to the Smackover district, where four 55's were recently leased from the Kettle Refining Company.

## Most of Zwolle Wells Now Treated With Acid

Shreveport, La.—A total of 152 wells in the Zwolle chalk rock field of Sabine Parish have been treated with acid, a survey up to May 15 indicates. There are at present 158 producing wells in the field with an average of 49.1 barrels each. The marl and chalk from which production there is obtained is from 2100 to 2800 feet, lying immediately above the Ozan series. The percentage of wells drilled which are producers of oil is slightly over 41 per cent.

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Carthage, Texas.—Owners of Mid-Continent Drilling Company's T. J. Wooten 1, Panola County, East Texas, claim a gas show and are shut down waiting for a string of casing at total depth of 2070 feet. The well is a wildcat.

## Arkansas Wildcat May Drill to 5,000 Feet

El Dorado, Arkansas.—Mrs. Mamie S. McCurry et al's Rowland 1, SW SW Section 9-19-11, a wildcat in Union County, four miles northwest of the town of Huttig, may go to 5000 feet unless production is secured higher, according to the owners. The well last

week was drilling below 2643 feet.

Wildcatting continues at a low ebb in Arkansas.

In Columbia County, C. W. and Rex Alworth are rigging up for W. D. King 1, Section 16-17-20. In Desha County T. J. O'Hare's Martin 1, NW SE Section 3-8s-1e, is waiting for surface casing at 140 feet.

In Jefferson County Harrell et al's McGaughey 1, NW NW Section 22-7-10, is reaming out with total depth of 1370 feet.

In Little River County, American Portland Cement Company's Fee 1, SW NE Section 21-12s-32w, is drilling below 2385 feet. Howell, Greer and Stevens are arranging to clean out Taafe 1, NW NW Section 25-12s-32, at total depth of 2919 feet.

In Miller County, Captain E. Byrd is rigging up for Westmoreland 1, SE NE Section 8-19-27. In the same county Fitzwater et al's Norsen 1, SE SW Section 34-16-26, is drilling below 2850 feet. Sam Riggs et al's Boyce 1, Section 12-15-27 in Miller County has resumed and is drilling below 880 feet.

In Sevier County, R. E. Collins et al's Craig 1, NE SE Section 15-10-29, is drilling below 600 feet.

## Two New Wildcats in Southwest Arkansas

Texarkana, Arkansas.—Two wildcat locations, both in southwest Arkansas, and one wildcat abandonment, were reported in Arkansas, last week.

In the Fort Lynn district of Miller County, W. T. Tarkington et al have a derrick up and are moving in rig for Gibson 1, located 1980 feet north and 660 feet east SWC Section 30-18-27.

In Hempstead County, Kentucky Oil and Gas Company had derrick up for W. S. Leslie 1, NW SW NW Section 21-9-26.

Arkansas' lone completion follows:

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Woodriff County— | | |
| B. F. Thompson, Rosser 1, 7-5n-2w (second completion) | * | 1748 |

*Failures; †Junked; ¶Million cu. ft. gas.

## Re-Gauge Made of Big Louisiana Gas Fields

Shreveport, La.—The semi-annual re-gauge of the Monroe, Richland and east and west Carroll Parishes gas fields was completed last week by the minerals division of the Louisiana Conservation Commission. The results will be compiled within a few weeks in the office of Dr. J. A. Shaw, director of the minerals division, and the quota allowables for each gas well in these fields for the ensuing six months announced.

## Parted Casing Stops Mississippi Deep Test

Jackson, Miss.—Trouble was encountered at a depth of 540 feet last week in Eastman, Gardiner et al's Bank of Seminary 1, NW NW Section 26-8n-15w, Covington County, a contemplated 7000-foot test, drilled on top of a structure as indicated by 31 core drill tests on this block. After 250 feet of 15½-inch welded surface pipe was set and the hole proceeded to 540 feet it was found that the surface string had parted, letting in enough gravel to hang up the tools. The string of casing was pulled and one joint left behind. A straight hole test is being made to determine whether to sidetrack or skid over for a new hole.

In George County, United Gas Public Service Company et al's Luce Packing Company 1, SW SW Section 25-1s-6w, is drilling below 3100 feet. In Jackson County, Gulf Refining Company's Dantzler Lumber Company 4, Section 32-5s-8w, is drilling below 2600 feet and in the same county, in SW SW Section 32-7s-6w, Dantzler Lumber Company 5 is still a location. No report has been received since Lamar County Oil Company's Scott 1, SW NE NE Section 18-2n-14w, Lamar County, was spudded.

In Monroe County, P. J. McAlpine's Charles Rye 1 bailed dry at total depth of 2915 feet. Owners are arranging to ream down and shoot.

In Stone County, Gulf Refining Company's Wilbe Lumber Company 1, Section 21-2s-10w, is drilling below 1500 feet.

In Sunflower County, Mississippi Oil & Gas Exploration Company's Ricketts 1, SE SE NW Section 26-23n-4w, is coring at 3250 feet for the cretaceous contact.

In Wilkinson County, Foster Creek Oil Corporation's Foster Creek Lumber Company 1, Section 14-2n-2w, is drilling below 3290 feet.

Three Mississippi locations were abandoned last week as follows: Magnolia State Oil & Gas Company's Anderson 1, NE NW Section 14-3n-3e, Amite County, abandoned at depth of 460 feet; Henslee et al's Warner A-1, SE SW NE Section 14-5n-1e, Rankin County, offsetting the same operators' well that produces oil of 13.2 gravity; and Love & Lancaster's Wansley 1, NE NE NW Section 21-4n-1e, Rankin County, a wildcat.

## One Completion, Two Locations in Jackson

Jackson, Miss. — Two new locations, both for wildcat tests, and one completion, a gasser in the northern edge of the Hinds County part of the Jackson field, were reported last week.

On a block of approximately 100,000 acres, Snow-Black Petroleum Company has derrick up and is moving in rig for Watkins 1, NE SW Section 24-7n-13w, Jones County, South Central Mississippi, "in the trend." Alfred S. Black, who is said to have at least 600,000 acres under lease in various parts of South Mississippi, is president and treasurer of this company and his wife is secretary. It has a nominal capitalization of $10,000. Black is also trustee of the Central Mississippi Oil Lands Trust and of the Mississippi Consolidated Oil Lands Trust.

In Warren County, R. G. Stivers of Tulsa, Oklahoma, has made location for Blake Estate 1, Section 16-17-4. This will probably be a 4000-foot test. It is in the center of a block of several thousand acres, eight miles north of Vicksburg, and has been previously reported in THE OIL WEEKLY.

The only completion last week in Mississippi follows:

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Hinds County (Jackson)— | | |
| Ferguson, Fuller et al, W. B. Montgomery 1, 26-6n-1e. ... | ¶15 | 2486 |

*Failures; †Junked; ¶Million cu. ft. gas.

## Getting Ready to Test Show in Alabama Well

Mobile, Ala.—Escambia Oil Company's State Line Lumber Company 1, NE NE NW SW Section 24-1n-10e, Escambia County, Alabama, is shut down at total depth of 1910 feet, following a reported show of oil, waiting for a testing tool.

In Lamar County, Alabama, P. J. McAlpine et al (DeSoto Oil & Gas Company) have pulled 196 feet of 5 3/16-inch liner in Gardner 1, NW NW Section 22-15s-16w, preparatory to deepening from total depth of 3350 feet.

## Arkansas Natural on Trend in Mississippi

Jackson, Mississippi.—Another major company has entered the leasing campaign in "the trend" through south Mississippi and Alabama, it is shown by records filed last week at Hattiesburg, Mississippi, which shows that Arkansas Natural Gas Corporation, a Cities Service unit, has taken 20,000 acres in Perry and Forest counties on an exploration contract and lease basis. The block was taken from R. L. Jackson of Alton, Illinois, and includes the site of Camp Shelby which was an army concentration point during the World War.

This is undoubtedly only a part of what this company is taking as many of those taking exploration leases and options of four and six months dura-

tion in this play have not put them on record. On this block, it is reported, a well must be started by September this year or a rental of 30 cents per acre be paid. This company drilled a test on a block it had several years ago in Wilkinson County, southwest Mississippi, before "the trend" idea became popular. It also was a pioneer driller in the vicinity of the Amory gas field in Monroe County, northeast Mississippi, the first commercial gas field in Mississippi.

A. Orr of Jackson has assembled a block of between 19,000 and 20,000 acres in Walthall and Pike counties, south Mississippi, also in "the trend" and plans an early test.

## Weather Conditions Slow Up Montana Wildcats

Helena, Mont.—The Jack Creek Oil Company has shut down at 1350 feet after having cemented off a streak of bentonite at 1288 feet in the No. 2 well on the Jack Creek structure, east of the Dry Creek field, in southern Carbon County. Location is No. 2 on NE NW SE Section 15-7s-23e.

Storms and bad road conditions have prevented the Enterprise Oil Company from actual drilling at the No. 2 Lynde, on the Lodge Grass structure, in Big Horn County. The test is bottomed at 3450 feet where it has been standing for two years. Dakota is the objective.

Montana Gas & Petroleum Company is shut down at 1737 feet after having cemented off cave at 1522 feet in the No. 1 on Three Forks structure, SE SE SE Section 35-2n-1e, in Gallatin County. The company recently ordered a new derrick for another test it plans to drill on the structure.

As soon as roads permit, work is to be resumed by the Golden Valley Oil Company at its test on Belmont dome, SW SE SE Section 28-6n-22e, in Golden Valley County. Hole has been standing at 3570 feet since November, the rig was destroyed by fire.

Considerably north of the proved territory of the Cut Bank field in Glacier County the P. T. Sweeney-Santa Rita joint test, No. 1 Lee Jacobson, NW NW Section 23-37-5w, is standing around 2530 feet, and will not drill in until lease titles are cleared up and the group has secured additional acreage. This well had good showing of oil and gas at 2499 feet and is said to be giving encouraging indications.

On the Blackfeet Indian reservation the W. M. Fulton test, No. 1 Haggerty, NE Section 16-34n-6w, is bottomed at 2100 feet, waiting for more 10-inch casing. Bad road conditions have made transportation most difficult in this territory.

# Well in New Colorado Field Gets Water in Dakota Sand

Denver, Colo. — Keen disappointment greeted the operators who had held high hopes for the outcome in the Dakota sand on the Buckingham-New Raymer structure in Weld County, Northeastern Colorado. The well was drilled to a total depth of 6658 feet and into the Dakota sand where water was developed. The test is that of the Continental Oil Company and others, No. 1 Anthes, NE NE Section 24-8n-59w; it is now being plugged back to the Muddy sand where the 7-inch casing is to be set around 6475 feet for a test. The horizon is reported to have shown good saturation when it was drilled through originally. The pipe is to be cemented 1000 feet above the casing point, according to reliable report.

On the Brighton-Lupton structure, also in Weld County, the test of W. H. Gill et al, the No. 1 Smith, on SE SE Section 14-1n-66, is standing with the 8¼-inch casing cemented at 300 feet. Objective of this test is the top of the Foxhills, mapped at 800 to 900 feet.

Tests of the Ohio Oil Company's subsidiary, the Mountain Fuel Supply Company, in Moffat County, Northwestern Colorado, have not made much progress for a week because of continued bad weather and road conditions. On the Sugar Loaf structure the No. 1 Hatch, NW SW Section 9-11n-101w, just south of the state line, is rigged and ready to spud. It will be carried to 5000 feet if necessary. To the east of this test the company has spudded in and set surface casing in the deep No. 2 Florence Wilson, NE NE Section 22-12n-100, on the Hiawatha dome. This is to be the first deep test to be drilled on this structure.

A bad fishing job which may cause the skidding of rig is holding up progress of the Trojan Oil & Gas Company on Lamar dome, in Prowers County, NW NE NE Section 15-23s-46w. Bad roads are preventing trucks loaded with fishing material from reaching the location. The test is a joint operation with the Shastatex Oil & Gas Company.

On the Jefferson structure in Park County the South Park Oil Company is drilling below 3038 feet in its No. 1 Milligan, SE Section 13-8s-76. The South Park Oil & Gas Company is still fishing for casing spear in its No. 1 Esche, Section 5-9s-76, on the Como structure. Total depth is 2465 feet.

# New Cut Bank Field Has Good Producer . . . Field Active

Cut Bank, Mont. — It is an unusual week in the Cut Bank oil field, northern Montana, which does not bring forth an interesting and important development. Last week the Roy Tarrant interests surprised all operators who have been watching the district closely by drilling in the largest producer yet developed, and a flowing well at that. It is the No. 1 Miller on center NE NE Section 24-34-6w, which came in natural last week and at the end of 10 hours had put 250 barrels of high grade petroleum into the tanks. On Wednesday the well was reported flowing at the rate of 25 barrels per hour. Along with the oil there is about a million feet of gas.

According to report from the field the new well had not drilled through the Darling sand. This would indicate that once it is penetrated the well may yield better than even present indications. The well started flowing at 2798 feet, and at that depth the sand was coming in so fast that it was impossible to run the bailer.

The No. 1 Miller has created more actual interest in the Cut Bank field by major companies that has been manifest there since its discovery. If the field is capable of developing many wells the size of the Miller well, it will encourage, certainly the entrance of the more important operators into the territory. The oil is high gravity excellent for refining, and there is no water along with it. The field as now outlined is about 12½ miles long and two miles wide. This territory may be even further extended at an early date if the P. T. Sweeney test, on the northernmost nose of the Cut Bank structure and only a short distance from the Canadian line, prove productive. On May 15 this well was reported to be running the 6-inch casing at 2490 feet, preparatory to drilling in. Loca-

tion is on NW NW Section 27-37-5w, some seven miles north of the nearest producing well in the gas part of the field.

There are eight other active drilling wells in the district and two locations.

## Resume Drilling on Dry Creek Field Test

Red Lodge, Mont.—In the northern part of the Dry Creek field, in southern Carbon County, the Croft test on Section 34-7s-22e, has set the 15½-inch casing at 512 feet and is ready to drill ahead. This well resumed drilling only a week ago after having stood at 500 feet during the winter months.

The Ohio Oil Company's No. 9 Souders, Section 2-7s-21e, has changed from rotary to cable tools; the hole is bottomed at 5471 feet. This well is reported to be making good showings of oil along with some gas in the top of the Lakota formation. The Dakota sand had a small showing of oil.

## To Test Shannon Sand In Midway Dome Well

Casper, Wyo.—The Mutual Oil Syndicate has been standing shut down at 2406 feet in the objective Shannon sand in the core test on Midway dome, 12 miles north of here. Crew is waiting for orders. A test is scheduled to be made of the sand. If commercial gas is not developed, the well will be carried deeper.

## Another Small Refinery Reported for South Dakota

Spearfish, S. D.—Another small independent refinery in South Dakota is reported from Spearfish, where a group of local men has completed arrangements to build such a plant. It is to be operated on crude petroleum trucked from the Osage field in Eastern Wyoming.

## Pick-Up Seen in Work As Wildcats Resume

Santa Fe. N. M.—One wildcat well resumed drilling last week, and location for a new test was reported. The Landowners Oil Company reported that it was preparing to resume active operations at its test on Buffalo Creek in DeBaca County. The well is No. 1 State on NE Section 16-1s-27, and A. H. McAdoo is in charge. In McKinley County the Frank Weber interests have made location for the No. 1 on Section 29-20n-9w, and are reported to be moving in.

It is reported that the Norrins Realty Company, which temporarily shut down at 4566 feet in the No. 1 Pajarito Grant, NE Section 22-9n-2e, in Bernalillo County, southwest of Albuquerque, is ready to resume.

No activity is reported from the tests under way in Chaves County.

On the Indian Creek structure in Eddy County R. Spearow's No. 1 McClelland, SW NW NE Section 22-22s-23e, is making good time and is last reported to be drilling below 2060 feet.

Anton Chico Development Company is drilling at 2200 feet in its test on Section 20-9n-17, in Guadalupe County. The New Mexico Producing & Refining Company is bottomed at 4770 feet in its No. 1 McMullen, Section 24-5n-16e.

An apparent failure is the test on the Fulcher Basin structure in San Juan County, drilled by the Fred Barrett interests. The well is No. 1 Hart on Section 11-29-12, and it has been suspended at 855 feet. This test had a gas showing at 715 feet which gauged 500,000 cubic feet per day.

In Santa Fe County the Kelsey Clients' No. 2 on Section 22-10n-10e, Crowe Butte, is standing bottomed at 295 feet.

The Western Natural Resources Corporation has 3600 feet of water in its No. 2 San Clemente Grant, NE Section 5-6n-1e. The well is bottomed in brown shale at 4469 (corrected) feet. It is in Valencia County.

## South Baxter Basin Test To Be Taken to Sundance

Rock Springs, Wyo.—The interesting and important deep test in the South Baxter Basin field in southwestern Wyoming which was started last year by the Wyoming-California Petroleum Company (Associated Oil Company), has resumed drilling and is now around 4110 feet. The well is on Section 23-17-104; it is to be carried to the hitherto untested Sundance sand, and perhaps on deeper to the Tensleep.

In the same field the Mountain Fuel Supply Company reports the completion of its No. 2 Mullen, Section 2-17-104, which is good for 2,150,000 cubic feet of gas from a total depth of 1853 feet. The well is now being connected with the pipe line distributing system.

In the North Baxter Basin field the Mountain Fuel Company's No. 2 Cappers, Section 12-9-104, is cleaning out at 2480 feet; the Frontier sand is the objective.

In the Hiawatha dome field the same company's deep test which is contracted to be carried to 7200 feet, the No. 2 Florence Wilson, on NE Section 22-12-100, is standing with the 20-inch cemented at 108 feet.

## Wyoming Wildcats Slow About Getting Under Way

Casper, Wyo. — Another wildcat well which has been shut down for the winter resumed last week in Uinta County, Southwestern Wyoming. It is the Park City Oil & Gas Company's No. 1 Christensen, NE Section 6-15n-113w, which is now drilling ahead around 3100 feet.

The wildcat test of S. Marvin James & Company, on the Riverside ranch structure in Albany County, Southern Wyoming, is drilling below 1020 feet and reports more gas showing. The well is the No. 1 Hindry, SW SW Section 10-13n-76w.

Good progress is reported from the wildcat well on Overland, or Pass Creek structure in Carbon County. The operation is that of the Earl W. Reader, Inc., interests on SW SW Section 10-20-83, and is now drilling around 700 feet. First objective is the Dakota sand, expected at 3400 feet.

Bad road conditions continue to hold up the work under way on Platte River dome, west of Casper, at the wildcat test

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of Leo B. Murphy and others. Location is on SE NW Section 29-33n-80w, and the hole is bottomed at 840 feet with the 8¼-inch casing set.

No report has been received of the activity on North Boone dome structure, by the Triangle Oil Company, on Section 29-36n-85w. This test was last reported bottomed at 370 feet.

On the Allen Lake structure the Ohio Oil Company's No. 1 A. J. Hazlett has been delayed by storms in spudding. The test is on SW Section 34-23-79, near Medicine Bow, in Carbon County. It is a test for natural gas.

## Two New Locations For Osage Field

Osage, Wyo. — The week saw two new locations reported in the Osage field in Wyoming, and one completion, probably a failure. The Duluth-Wyoming Oil Company located its No. 3 on SE SE SW Section 12-46-64, and the Rose & Herbison interests spotted the No. 1 on NW NE NE Section 13-46-64. The completion is the Rose & Herbison No. 3 Thierry, NW SW SE Section 31-46-63, which is reported to be dry at 1540 feet.

There is little other activity in the district.

## Hearing on Hobbs Allowable June 12

Hobbs, New Mexico.—Operators in the Hobbs field that are seeking a change in the method of apportioning allowable production among leases and wells will have their complaints given further consideration when a special meeting of the field's engineering committee is held at Fort Worth, Texas, June 12. The protesting group failed to accomplish anything at a meeting of operators held at Tulsa May 18. The field is now prorated on a basis of 75 per cent of the allowable for average unit potential and the remainder for acreage, and companies having small average potential are endeavoring to distribute 40 per cent of the allowable on a basis of acreage, and 60 per cent for average potential.

Harvey Hardison, petroleum engineer for The California Company, has tendered his resignation as chairman of the engineers' committee after serving nearly three years in a most capable manner. A movement is on foot to have C. G. Staley, field umpire, relieve Hardison.

A bid for a half mile eastward extension to the Jal field, Lea County, is being made by Continental Oil Company and The California Company's S. J. Wells 1-A, C SW NE NW Section 12-25s-36e, having developed a flow of 47,000,000 cubic feet of dry gas in lime at 3200 feet. An increase in gas was logged at 3265-67 feet, but not tested. This outpost logged top of brown lime at 2750 feet.

Completions in Hobbs field follow:

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Hobbs Field— | | |
| The California Co. et al, H. D. McKinley 2 | ¶6½-5500 | 4241 |
| Stanolind Oil & Gas Co., E. H. Byers (nw sec. 3) 29 | 1295 | 4190 |
| Texas Pacific Coal & Oil Co., State 4-G | ¶6-6090 | 4225 |

*Failures; †Junked; ¶Million cu. ft. gas.

## Pipe Line Probable for Maverick Springs Pool

Casper, Wyo.—The recent order issued by the Secretary of the Interior which sustains a previous departmental order requiring production of leases by oil companies in the Maverick Springs oil field in Hot Springs County, Wyoming, will probably mean the construction of a pipe line from the field to railhead at Riverton or Shoshoni, in Fremont County. The Secretary said that the oil companies had not shown such good faith as would be required in a court of equity and, further, that if the contract had been with a white person the suspension of production in the field from 1917 to the present time would not have been tolerated. Secretary Ickes said he might modify his order if the oil companies would propose to do equity in the matter, and he allowed the companies a week to submit equitable terms on which he might act.

There are at present 32 wells completed in the Maverick Springs field. They produce a good grade of black oil. Since the discovery in 1917 it is pointed out that 21 other black oil fields have been brought in in Wyoming and put on production.

## Efforts to Change Oil Control Fails

Mt. Pleasant, Mich.—A bill introduced in the Michigan legislature April 13 proposing a new state department of oil, gas and mineral rights to control lands now under the jurisdiction of the state conservation department has been killed in the senate committee on state affairs.

The senate committee voted to table the measure indefinitely.


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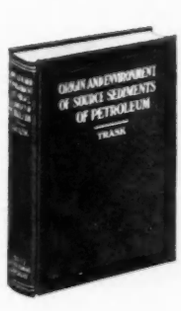


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# Michigan's New Depth Record Test Drilling Below 6418 Feet

Mt. Pleasant, Mich.—A new Michigan depth has been established with the A. J. Bates 1, Newago County wildcat, reaching 6418 feet and now drilling in the Trenton cap rock. The previous Michigan record was 6310 feet established by Michigan Petroleum Company's Moe 1, Ottaway County, Chester township, and abandoned in 1930.

The Bates test is being drilled by the Newago Gas and Oil Company of which A. J. Bates of Chicago, Illinois, is president.

In establishing the new state depth record, and still drilling, the Bates test is being closely watched by geologists and represents one of the most interesting tests ever put down in the state.

There has been little exploration in the state of formations below the Devonian age. The state's main production has been found in the Dundee limestone (3000 to 4000 feet) with some oil production from the Traverse lime and Bera sand. The Parma sand has shown some gas as has the Monroe. The chief gas fields of Central Michigan are producing from the Michigan Series sand (1300 to 1600 feet).

The Bates 1 is located in Newago County, Sherman township, Section 12, NE NE SE. Drilling was commenced in 1929 and is being operated on day tower only (12 hours). Several temporary shut downs have occurred since operations were started.

The test is being drilled with cable tools, seven eighths-inch cable, powered by two steam boilers, four-foot stroke and about 15 to 20 blows per minute.

The hole is cased with 16-, 12-, 10- and eight-inch casing, the eight-inch being set 3200 feet. Below this depth a 6⅝-inch hole has been drilled. No major caving troubles have occurred and the hole was drilled comparatively straight as evidenced by little wear on the drilling cable.

The Trenton was topped at 6385 feet. On the last samples taken at 6418 feet the formation had started to show gray lime, the upper layer being composed mostly of black shale. The formation is extremely hard but appeared to be softening up on the last screw drilled.

The Silurian age of which the Trenton is a member has long been regarded in Michigan as a potential gas or oil producing stratum but little exploration work to this depth has been done. A slight gas show was believed to have been made around 6415 feet but because of gas coming from around 4800 feet it was not definitely determined.

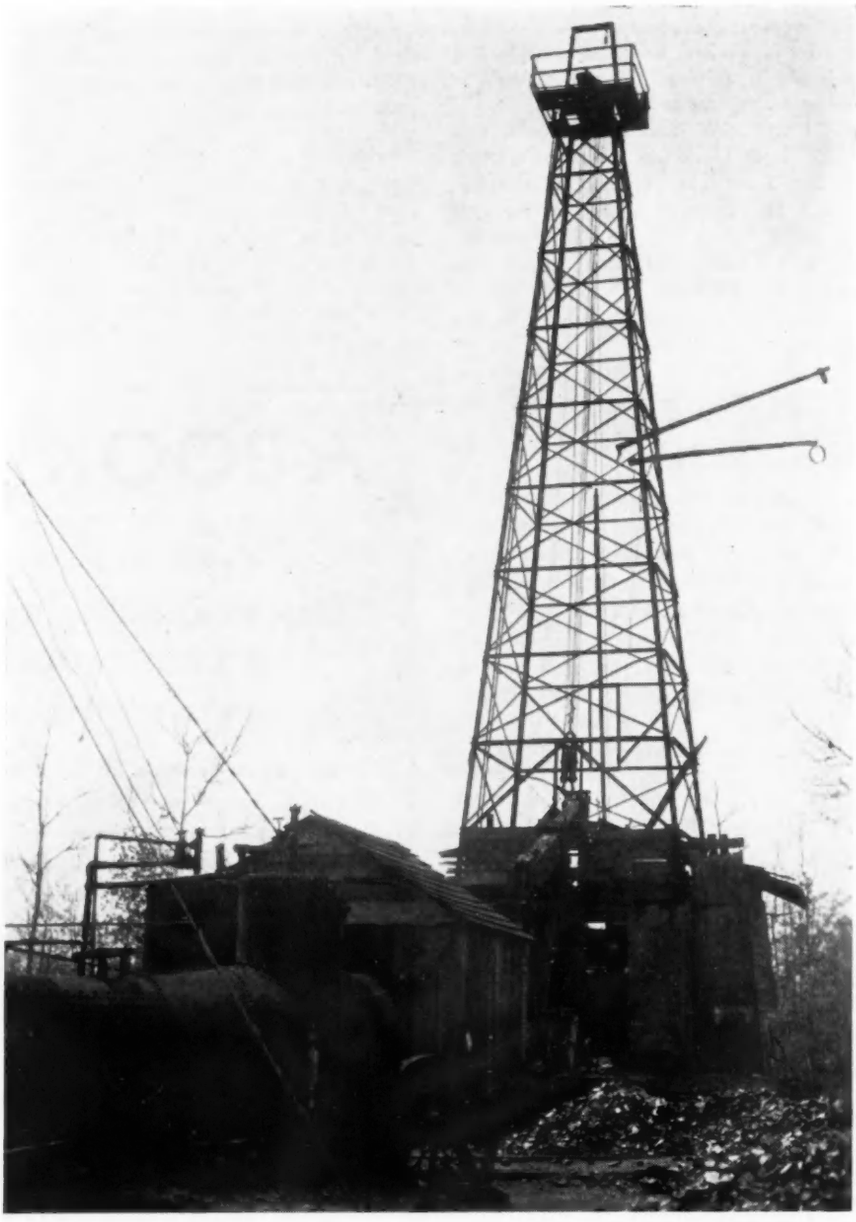
At 4800 feet a salt bed was encountered above the Niagara cap rock. The salt bed was 800 feet thick. The Niagara formation was 700 feet thick, where the Utica shale was encountered. This shale formation was heavily ladened with silica and extremely hard.

A. A. Leicht, driller, who has been drilling wells in the East for the past 20 years and previously in the Mid-Continent area, spudded the Bates 1 and has been with it ever since. Len Brooks is the tool dresser.

The Newago Oil & Gas Company owns 1000 acres in fee and has 2000 more acres under lease in Newago County.

Mr. A. J. Bates, president of the company, acquired 520 acres of land in Newago County in 1914 in a real estate trade and says that he never saw the land until 14 years later. When the discovery well in the Muskegon County field was brought in in December, 1927, and the Mt. Pleasant field a year later he says that he "sat up and took notice." The Bates well location is about midway between the Muskegon and Mt. Pleasant fields.

Michigan Gas & Oil Company landed



***Newago Oil and Gas Company's A. J. Bates No. 1 which has established a new depth record for Michigan and is still drilling ahead. The well is now below 6418 feet.***

**A. A. LEICHT**
***Driller on Newago Oil & Gas Company's A. J. Bates No. 1***

drive pipe at 395 feet on W. Busche 1, Isabella County, Wise township, Section 10, and is drilling ahead. In Section 5, Vernon township, same county, Strange and Flynn's W. E. Currie 1, is driving pipe.

Of six active semi-wildcat tests in Porter township, Midland County, Sun Oil Company's Miller 1, Section 16, SE SE SW, will be the first completed, now drilling below 3100 feet.

Strange and Fordney's Campbell 1, Section 17, NW NW SW, is drilling at 1450 feet and Strange Oil & Gas Company's Sam Walley 1, Section 16, S½ SE, is drilling at 1400 feet.

W. S. Wilson, Trustee's, Carter 1, Section 18, NE NE SW, is drilling at 850 feet and William Wilson's G. R. Hathway 1, Section 18, SE NE NW, is driving pipe at 200 feet.

McClanahan Oil Company's Hathway 1, Section 17, S½ S½ SE, is drilling at 500 feet.

The six tests are northwest of the Teater-Otway discovery well of the Porter township oil pool and promises important exploration of the area.

In Oceana County two wildcat tests are drilling and a third is on location ready to spud. Old Dutch Oil & Gas Company's Hallock 1, Perry township, Section 6, is drilling at 600 feet and H. F. Freisner's Werich 1, Perry township, Section 6, SE NE NW, is drilling below 1200 feet.

Flannigan and Voorhies' Garnett 1, Shelby township, Section 2, is ready to spud.

## Midland County Gets Most Michigan Permits

Mt. Pleasant, Mich.—Ten permits to drill were issued this week in Michigan, seven for Midland County locations, and three for scattered outpost locations.

A location made by James Taggart et al on Robert Fish 1, Mecosta County, Austin township, SW NW SE Section 10, will prove an interesting test, being approximately a half mile north of the same interest's Barton 1, wildcat which developed four million cubic feet of gas from 1485 feet. The test was deepened to 3790 for a Dundee lime test without an oil show. It has been plugged back and will be produced as a gas well.

Two wildcat locations are included in the new permits: Flannigan and Voorhies' Garnett 1, Oceana County, Shelby township, NE NE Section 2, and Scott Stamler's Cooper 1, Cass County, Penn township, NE NE NE Section 6.

Another outpost location is that of Greendale-Lee Oil Development Company's Hitsman 1, Midland County, Lee township, NW NW SW Section 13, approximately six miles east of production in the Greendale township pool.

Other permits are as follows: Dougherty and Markey's Forbes 1, NE SW SW Section 22; Lang and McClure's Otway 1, SE NW NW Section 26; William Wilson's Hathway 1, SE NE NW Section 18; Lang and McClure's Hill 1, NW SW NE Section 22; Pure Oil Company's Huff 1, SE SE Section 15; Pure Oil Company's Baxter 1, SW SE Section 15; all Porter township, Midland County.

## Showing Causes Interest In Isabella Township

Mt. Pleasant, Mich.—Mammouth Petroleum Company's Marseilles 1, Vernon township, Section 23, NW NW SE, semi-wildcat, increased interest in the northern Isabella area this week by showing for an estimated 100 barrels a day well from Dundee lime at 3740 feet.

After filling with 2200 feet of oil the well flowed when swabbed. It is being tubed and will be pumped.

The test is located about three-quarters of a mile east of the Vernon oil pool, and will bring at least four offset tests.

Two wells were completed in the new Porter township, Midland County, field this week, both inside locations. Smith Petroleum Company's Buschre 1, SW SW NE Section 22, made 1030 barrels initially from 3418 feet. Ed Stewart's Richmond 2, same section, SW SE NW, had a 100-barrel initial from 3421 feet.

Completion of the two wells brought the total to 16 for the township since February, all commercial wells. Fourteen tests are drilling in the township.

Acid boosted production on C. W. Teeter's Otway 3, from 325 to 800 barrels; on C. F. White's Otway 1 from 50 to 250 barrels; Ed Stewart's Richmond 1 from 120 to 450 barrels, all Porter township, Section 22.

Only eight scattered tests are active at the present time in the old Chippewa-Greendale pool of Central Michigan.

Completions of the week follow:

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Midland County— | | |
| Smith Petroleum Co., Buschre 1, Porter Twp., sw sw ne, Sec. 22 | 1032 | 3418 |
| Ed. Stewart, Richmond 2, Porter Twp., sw se nw, Sec. 22. | 100 | 3421 |
| Pure Oil Co., State A3, Greendale Twp., sw ne, Sec. 7.... | 75 | 3580 |
| Theodore Oil Co., Steed 2, Greendale Twp., se sw nw, Sec. 9 | * | 3575 |
| Isabella County— | | |
| Mammouth Petroleum Co., Marseilles 1, Vernon Twp., nw nw se, Sec. 23..... | 100 | 3740 |
| Saginaw County— | | |
| Smith Petroleum Co., Wiltse 1, Birch Run Twp., n¾ ne¼, Sec. 28 | * | 1575 |

*Failures; †Junked; ¶Million cu. ft. gas.

## Bay City to Have Mixed Gas June 5

Mt. Pleasant, Mich.—Consumers Power Company will start servicing Bay City, Michigan, June 5 with mixed artificial and natural gas, the latter to be supplied from the Broomfield (Isabella County) field.

The contract on which the mixed gas is to be furnished stipulates that the company shall supply straight natural gas as soon as necessary lines and equipment can be constructed.

A similar contract offered to Saginaw, Michigan, is pending.

## Lower Michigan Section May Have Oil Fields

Mt. Pleasant, Mich.—State Geologist, R. A. Smith declared, "Only the slightest information is available on the possibilities of the upper part of the Lower Peninsula of Michigan as to oil producing territory and exploratory work will be expensive because of top dirt depth running to 1000 feet, but I believe that section of the state may be even better than the Central Michigan pools," in an address here May 20 at the annual meeting of the Michigan Association of College Teachers of Chemistry.

"Most of Michigan has five promising

oil formations. At present we are only exploring the top layers. It will be more difficult drilling but oil pools are likely to be found at greater depths," he said.

## Ohio Shutting Down All Rock River Operations

Laramie, Wyo.—Another field joined the lengthening list of those shut in in Wyoming last week when the Ohio Oil Company started closing down all operating in the Rock River field, 55 miles northwest of here. The lack of adequate storage and the low price of crude are given as the reasons for the shutdown. Before the Standard Oil Company (Indiana) abandoned its refinery at Laramie the Ohio Oil Company supplied the plant with its crude requirements from the Rock River field.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## Eastern States Field Results Show Increase

Cleveland, Ohio. — Eastern States fields registered a noticeable increase in field results during the week when 37 completions were recorded, exclusive of pressure wells drilled in Pennsylvania.

Thirteen oil wells contributed 344 barrels flush production. Sixteen of the completions were gas wells, and the remainder dry holes.

A detailed list of the completions follows:

**Pennsylvania**

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Bradford Field— | | |
| Minard Run Oil Co., Morris 40 | pressure | .... |
| Bradford Producing, Inc., Fee 36, 37 | pressure | .... |
| Fee 38 | 4 | .... |
| South Penn Oil Co., Farm 4084 tr. (3 wells) | pressure | .... |
| Farm 4294 tr. 5 | 2 | .... |
| Sloan & Zook, Fee 46 | 4 | .... |
| R. S. Falconer, Waid 5 | 3 | .... |
| H. J. Walter Oil Co., Moore 10 | 3 | .... |
| Clarion-Venango Counties— | | |
| R. & G. Foggan, Clark 44 | 2 | .... |
| Fryburg Motor Co., Fee 1 | ¶ | .... |
| Washington County— | | |
| Wise Oil & Gas Co., Roach 1 | ¶ | 2982 |
| New York-Penn Gas Field— | | |
| Kerr-Kaufman Co., Woodruff 1 | ¶ | .... |
| Peterman & Co., Waterman 1 | * | .... |

**New York**

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Allegany County— | | |
| D. E. Quinlan Estate, Quinlan 1 | 8 | .... |
| Forest Oil Corp., Fee 7 | 2 | .... |

**West Virginia**

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Boone County— | | |
| C. P. Jones & Co., McKinney 1 | ¶ | 2053 |
| Calhoun County— | | |
| W. A. Bickerstaff, Gainer 1 | ¶ | 1900 |
| Cabell County— | | |
| R. H. Adkins & Co., Darnell 1 | ¶ | 2614 |
| D. R. Campbell Hrs., Holton 2 | ¶ | 3703 |
| Wood County— | | |
| Burnt Hill Oil & Gas Co., Palmer 1 | * | .... |

**Southeastern Ohio**

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Monroe County— | | |
| Southerland Oil & Gas Co., Quigley 1 | ¶ | 890 |
| E. G. Cunningham & Co., Reed 1 | ¶ | 870 |
| Washington County— | | |
| Benedum & Trees, Knowlton 1 | * | 7767 |

**Central Ohio**

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Carroll County— | | |
| Collins, Linsell & Co., Laggett 1 | * | 1213 |
| Coshocton County— | | |
| Preston Oil Co., Little 2 | 76 | 3123 |
| Fairfield County— | | |
| City Natural Gas Works, Ricketts 4 | * | 636 |
| Meigs County— | | |
| Ohio Fuel Gas Co., Archer 4 | ¶ | 1034 |
| Perry County— | | |
| Clyde Foraker & Co., McCray 1 | * | 3633 |
| Stark County— | | |
| Ohio Fuel Gas Co., Gill 2 | ¶ | 4538 |

**Northwestern Ohio**

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Wyandot County— | | |
| Upper Sandusky Oil & Gas Co., Loverick 1 | ¶ | .... |

**Indiana**

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Harrison County— | | |
| Indiana Utilities Corp., Longbottom 1 | ¶ | .... |
| Longbottom 2 | ¶ | .... |
| Longbottom 3 | ¶ | .... |
| Longbottom 4 | ¶ | .... |
| Martin County— | | |
| Sproull & Co., Larkin 2 | 10 | 537 |
| Vanderburg County— | | |
| Knapp & Woods, Indiana Gas & Electric Land 1 | 28 | 894 |

**Kentucky**

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| Allen County— | | |
| Morris & Morris, Tabor 8 | 2 | 400 |
| W. B. Bastrus, Beam 1 | * | 600 |
| Daviess County— | | |
| Brenner & Adams, Jackson 2 | 200 | 680 |
| Ohio County— | | |
| Vickers & Co., Westerfield 3 | * | 622 |

| Company, Well and Location | Bbls. | Depth |
|---|---|---|

# New Equipment for the Field

## Machinery . . . Tools . . . Catalogs . . . Books

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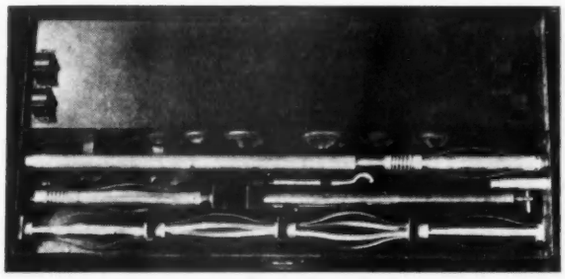
### 1. Drift Indicator

**ACME MACHINE COMPANY**



Acme Machine Company, 2680 Atlantic Avenue, Long Beach, California, anonunces the Drillers Guide drift indicator for determining the drift of drilling wells.

Strongly constructed, simple in operation, it contains no delicate mechanisms, no clockworks, no electrical devices. A glass lens in the top of the indicator enables the operator to obtain readings without opening the indicator. There is only one screw joint to make and break when taking readings.

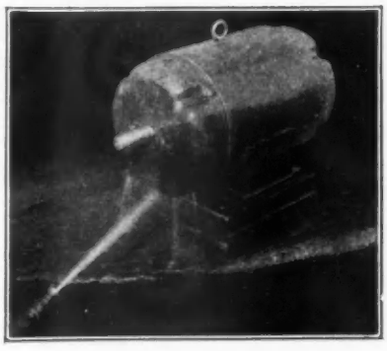
The drift indicator is run in a go-devil in the drill pipe and must strike a bridge plate on the pin of the bit to operate the plumbob locking mechanism. The go-devil is pumped down and circulation maintained until pulling out, and drill pipe may be moved up and down while taking readings.

The go-devil is fitted with interchangeable guide springs so that this equipment can be used in sizes of drill pipe from eight-inch to four-inch. All parts of the go-devil and indicator are constructed of rust-proof material.

### 2. Splash Proof Motor

**IDEAL ELECTRIC & MANUFACTURING COMPANY**

The Ideal Electric & Manufacturing Company, Mansfield, Ohio, announces a splash proof motor, especially designed for use in places where water or other liquids may be splashed on the motor, or where the equipment is frequently washed down



with a hose as a stream of water striking the motor at any angle or even pointed directly into the ventilation duct as illustrated will not wet the motor windings.

Baffles placed in the air ducts remove all spray from the air entering the motor and keep the motor windings dry at all times. The motor is simply a standard induction motor using special bearing brackets.

These motors are made in all sizes from one to 200 horsepower as squirrel cage induction motors and meet and all classifications of torque and inrush requirements. They are also available as cross-the-line start motors up to 200 horsepower and can be supplied as unity (100%) or 80% leading power factor induction motors in all sizes.

### 3. Winch for Caterpillar

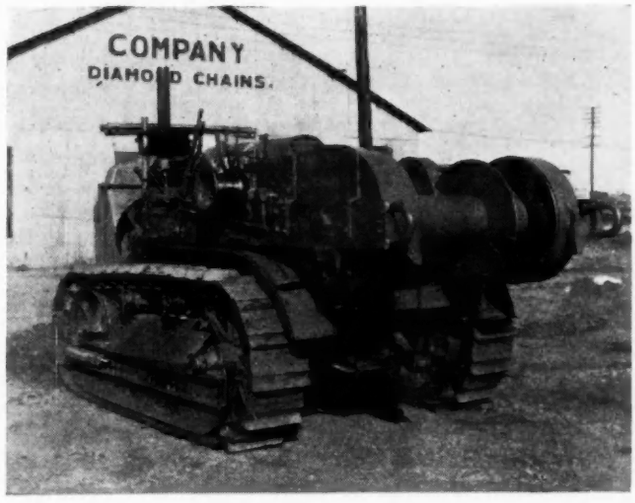
**WILSON MANUFACTURING COMPANY**

Wilson Manufacturing Company, Wichita Falls, Texas, announces a new superwinch for Caterpillar tractors Model 60, 65 and 70.

The superwinch is made in two sizes. The super size has 32-inch steel wheels with eight-inch wide dual, full wrap, and self-energizing brakes. The giant model has 36-inch wheels with 10-inch wide, dual, full wrap and self-energizing brakes.

There is a special design Wilson power take-off.

The winch works on a heavy duty transmission with eight




*Showing Wilson Superwinch*

forward speeds and one speed reverse, and the transmission is designed specifically for winch service.

According to the manufacturer, every bearing in the machine is oversize and of the anti-friction type.

Weight distribution of the winch upon the tractor has been

— — — — — — **MAIL COUPON** — — — — — —

THE OIL WEEKLY,
Houston, Texas, U. S. A.

Please see that I am supplied, without obligation, additional information on New Equipment Items Nos..... described in the May 29, 1933, issue of THE OIL WEEKLY.

*Name* .....

*Company* .....

*Address* .....

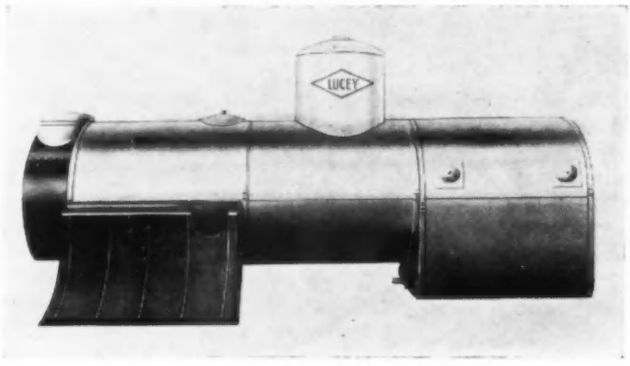
arranged in such a manner that no counterweights are necessary to balance the tractor when running or when working stationary. The weight distribution also contemplates a full drum of wire line.

## 4. Boiler Casing

**LUCEY PRODUCTS CORPORATION**

Lucey Products Corporation, 224 East Brady Street, Tulsa, Oklahoma, announces a removable, insulating casing for oil field boilers, claiming for that casing a saving in fuel, drier steam, steadier steaming, saving in water, a reduction in scale formation, and lowered boiler maintenance.

Construction is of 16-gauge, hot rolled, annealed steel in 16 sections, held in place by adjustable bands. Access to any part of the boiler for repairs can be had by removal of the adjacent section. Each section is lined with two-inch thick mineral wool made from slag from which all sulphates have been burned out. This prevents corrosion of boiler plates. There is a three-




*Lucey Boiler Equipment with Casing*

quarter inch air space between the insulation and the boiler to increase the effectiveness of the insulation and further reduce corrosion possibilities. Covers are provided for handhole and manhole openings. Each section weighs 150 pounds, making the complete insulation weigh 2400 pounds.

## 5. Fire Hose Process

**B. F. GOODRICH RUBBER COMPANY**

The B. F. Goodrich Rubber Company, Akron, Ohio, announces the "Hydroseal" treatment of cotton jackets for its line of fire hose for industrial use.

By use of the Hydroseal process every cotton strand in the hose jacket is impregnated with the wax and gum mixture. It is made possible by the process through a method of damming off, thereby preventing the wax and gum mixtures reaching the rubber backing and tube. Because of this method, adhesion of the tube to the jacket is not affected. The manufacturers are also able to thoroughly impregnate the inner jacket of double jacket hose.

Treatment contains a fungicide chemical which combats mildew. Other advantages cited by the manufacturer are: Insures adequate adhesion between jacket and lining with complete impregnation of cotton in the jackets, without materially affecting flexibility; affords a hose jacket with much higher resistance to water absorption; the Hydroseal cotton jacket does not adhere tightly to ice; Hydroseal process permits penetration of wax and gum treatment of such nature that circular woven jackets can now be treated satisfactorily, giving much long life to treated hose.

## 6. Seamless Boiler Tubes

**JONES & LAUGHLIN CORPORATION**

Jones & Laughlin Steel Corporation, Pittsburgh, Pennsylvania has announced a complete line of hot rolled seamless steel boiler tubes. A push-bench mill, the only one of its kind in this country, is used for manutacture.

The manufacturer claims these boiler tubes have exceptional ductility and lend themselves quite readily to rolling in and beading operations. The surfaces both inside and outside, are smooth. This, the manufacturer states, is an important factor in retarding corrosion when the tubes are in use and in minimizing depreciation while they are held in stock.

The product complies with the A. S. M. E. boiler code, A. S. T. M. specifications, and the U. S. steamboat inspection service rules and regulations.

## 7. Alloy for Acid

**THE DURIRON COMPANY, INCORPORATED**

The Duriron Company, Incorporated, Dayton, Ohio, announces an alloy which will handle all concentrations of hydrochloric acid at all temperatures up to the boiling point, without any appreciable loss.

Heretofore the only metal alloys which would withstand the corrosive action of hydrochloric acid have been very expensive, so much so that many types of handling equipment have been impractical from the cost viewpoint, according to the manufacturer. This new alloy is comparatively inexpensive.

Oil producers will probably be interested in this alloy in connection with the hydrochloric acid method of increasing well production.

## 8. New Scout's Yearbook

**NATIONAL OIL SCOUTS ASSOCIATION**

The third issue of the "Year Book" of the National Oil Scouts Association of America, covering oil and gas developments during the calendar year 1932, has recently been published and put into circulation; and its quality and value may be described by saying that it measures up to the high standards achieved in the two previous issues, covering activities in 1931 and 1930.

The wide range of subject matter is indicated by the fact that the book thoroughly supplies information on 1932 developments in East Texas, North Central Texas, West Central Texas, West Texas, the Texas and Louisiana Gulf Coast region, Southwest Texas, Southeastern New Mexico, North Louisiana and South Arkansas, and Mississippi and Western Alabama.

For each of those districts information is included on drilling activities in proven and wildcat areas, geological and geophysical work, amounts of oil production, development of natural gas reserves, leasing activities, pipe line construction and operations, steel storage facilities, refineries and gasoline plants, and other pertinent subjects.

As in the case of the two earlier issues of the Year Book, the new book is thoroughly illustrated with maps, charts, drawings, and tables. It has 195 pages, is 8 by 10½ inches in size, and has a durable, special paper composition cover. Printing was done by The Gulf Publishing Company, Houston.

Aside from the copies of the book which have been supplied to members of the scouts' association a limited number of additional copies will be available for sale at $5 per copy; and distribution of those extra copies will be handled by the newly elected secretary-treasurer of the association, C. O. Falk, Humble Oil & Refining Company, Smith-Young Tower, San Antonio, Texas.

# NEWS *from the* *Industry's* EQUIPMENT MAKERS

## Nelson Joins Fred E. Cooper Company

C. F. Nelson, formerly a member of the engineering staff of Advance-Rumely, has recently joined the Fred E. Cooper organization in Tulsa, in developing a new line of winches for the Allis-Chalmers line of tractors and motors on skid units. At the completion of this work he will be employed in the capacity of sales engineer. Prior to joining the Cooper organization he was actively engaged in mechanical engineering and its allied fields for a period of twenty-four years, during which time he was in direct contact with many major developments.

C. F. NELSON

Mr. Nelson began his preparations for engineering work at the University of Minnesota and later supplemented his mechanical engineering training with the study of business administration. After leaving school he was connected with the mechanical engineering department of the Soo Line Railway for a period of four years, terminating this connection to accept a position with the Emerson Brantingham Company of Rockford, Illinois, as designing engineer in the tractor division. After five years service in that organization he became associated with the Gray Tractor Company as chief engineer, after which he accepted the position of chief engineer for the Wm. J. Oliver Manufacturing Company of Knoxville, Tennessee. During the last two years of his five year connection with this company he acted as plant manager. He was subsequently connected with the Reed Foundry and Machine Company of Kalamazoo, Michigan, in charge of engineering and production for a period of two years and terminated this service to accept a position with the Kansas City Southern Railway Company in connection with the design and development of a pulverized fuel burning system for locomotives. Completing the work in 1929 he became connected with Advance-Rumely as engineer in charge of crawler tractor design.

# CATALOGS BULLETINS

### Pipe Compound

Technical Products Company, Pittsburgh (15) Pennsylvania, announces availability of folder showing compounds for many types of pipe used in various industries.

### Welding Rods

American Manganese Steel Company, 389 East 14 Street, Chicago Heights, Illinois, announces availability of a four-page, illustrated bulletin titled "Nickel Manganese Steel and No. 459 Hard Surfacing Welding Rods."

### Pumping Equipment

W. C. Morris, Tulsa, has available descriptive bulletins on pumping equipment including the latest designs with improved mechanical features fully illustrated.

### Welding

Republic Steel Corporation, Central Alloy District, Massillon, Ohio, announces availability of a booket entitled "The Welding of Enduro Stainless Alloys."

The booklet contains a large fund of comprehensive information on various welding methods as applied to different types of Enduro stainless alloys, including electric arc welding, gas welding, spot and projection welding, seam welding and flash welding.

### Drilling Fluids

Geo. S. Mepham Company, East St. Louis, Illinois, manufacturers of Colox, a mud weighting and conditioning material, have published an attractive and informative 16 page booklet on drilling fluids.

### Electric Weld Tubing Handbook

Steel and Tubes, Incorporated, 223 East 131 Street, Cleveland, Ohio, announces availability of a 68 page, illustrated handbook on electric weld tubing. The handbook gives highlights on the manufacture of electric weld tubing, the weld characteristics of such tubing, physical properties, table showing standard sizes and gauges, table showing weight per foot of tubing, table of minimum bending radii for various sizes and gauges, and a number of other interesting features.

### Diesel Engine

Superior Engine Company, Springfield, Ohio, announces availability of Bulletin 129 of certain sizes and types of Diesel engines.

### Air Compressors

Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin, announces availability of a four-page, illustrated leaflet, No. 2159, describing single stage, water cooled air compressors. This leaflet covers a complete line of rotary air compressors and vacuum pumps of the multicellular type, sliding vane type, ranging in volume from 50 to 2000 cubic feet per minute.

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(Address manufacturer direct)

.....

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Gentlemen:

Please send to me, without obligation, free booklet described in THE OIL WEEKLY of May 29, 1933.

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# Squeaks *from the* BULL WHEEL

The big game hunter was telling his stay-at-home wife all about his encounter with the Bengal tiger, and how he had finally shot it. "Yes," he wound up, "it was a case of the tiger or me."

"I'm so glad it was the tiger, dear," she said sweetly, "otherwise we wouldn't have this lovely rug."

---

"Two dollars an hour for painting my car, and you a painter out of a job? Why, I wouldn't give Michel Angelo $2 an hour in times like these."

"Well, mister, I don't know who this Mike fellow is, but if he paints cars at less than $2 an hour, he doesn't belong to no union."

---

Husband (who has just secured a job): "Cheer up. The tide has turned. I've found a job as night watchman."

Wife: "Well, if that ain't aggravatin'. I've only just finished makin' ye a couple o' new night shirts."

---

"Mrs. Upton's pet dog has been run over; she'll be heart-broken."

"Don't tell her abruptly."

"No, I'll begin by saying it's her husband."

---

"What's your name?" the store manager asked the young applicant for a job recently.

"Ford," replied the lad.

"And your first name?"

"Henry."

"Henry Ford, eh?" remarked the manager with a smile. "That's a pretty well-known name."

The boy looked pleased.

"Yes, sir, it ought to be," he replied proudly. "I've been delivering groceries around here for two years now."

---

Two Irishmen, with a grievance against their landlord, decided to settle it man to man and laid for him one night with their shillalahs. They expected him to pass their hiding place at nine. At 11 he had not made his appearance.

"Now what the divvle," said one of them, "can be kapin' 'im?"

"Do you suppose, Pat," said the other in a voice of sympathy and solicitude, "that anything can have happened to the poor fellow?"

---

"See if you can laugh that off," said the fat man's wife as she wired a button on his vest.

A Scotsman went to a fancy-dress ball in the guise of Napoleon. A friend, meeting him at the function, said, "Now, why on earth should a Scotsman dress up as Napoleon?"

"Weel, for one thing, you can keep your hand on your wallet all the time," replied the Scot.

---

Patient—Doctor, I'm bothered with a queer pain. When I bend forward, stretch out my arms and make a semi-circular movement with them, a sharp sting comes in my left shoulder.

Doctor—But why make such motions?

Patient—Well, if you know any other way for a man to get on his coat, I wish you'd let me know.

---

"Does your bride know anything about cooking?" asked the old friend meeting a recent bridegroom.

"She's learning," was the reply. "Yesterday I heard her call up her mother and inquire if she had to use soft water for soft boiled eggs and hard water for the other kind."

---

Rescued—Sir, you have saved my life. I would gladly give you five dollars, but I have only a ten dollar bill.

Rescuer—That's all right, jump in again.

---

Doctor: "If your nerves are frayed, the thing to do is to bury yourself in your work."

Patient: "And me a concrete mixer!"

---

"You say you never clash with your wife?"

"Never. She goes her way and I go hers."

---

"Did you hear Erica is marrying her X-ray specialist?"

"Well, she's lucky. Nobody else could ever see anything in her."

---

St. Peter: "How did you get up here?"

Latest Arrival: "Flu."

---

**Sign of the Times**

Recently Gardner-Denver Company received an inquiry for an electrically operated air compressor from a manufacturer of church pews, altars, pulpits and special ecclesistical furniture, who stated they were "planning to extensively manufacture bar-room equipment."

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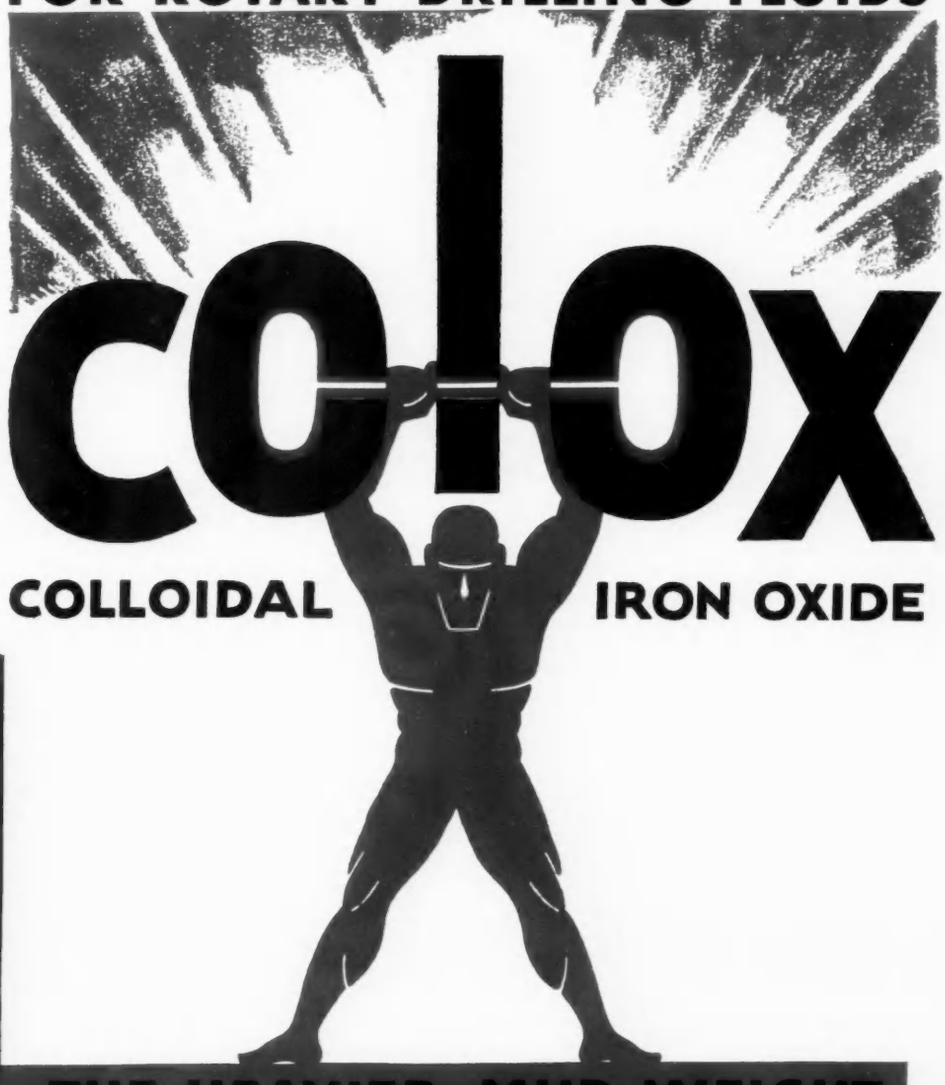


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**THE HEAVIER MUD WEIGHT**

COLOX not only makes a heavier mud weight (makes pumpable muds up to 18 lbs. per gallon) but it conditions the mud to control troubles you run into when drilling any well. Colox is very fluid (thin) even in the heaviest mixes, will not ball up and forms a thin strong filter cake on the walls of the hole.

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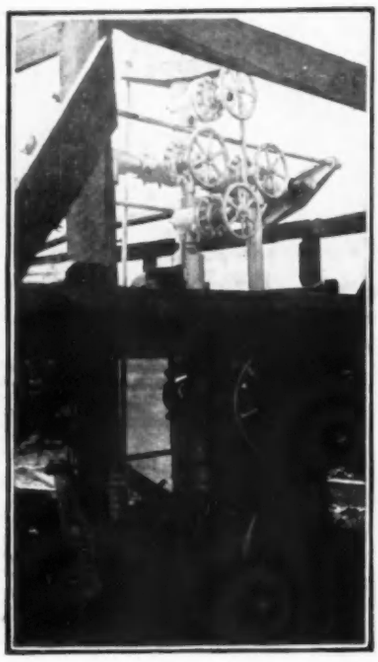

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